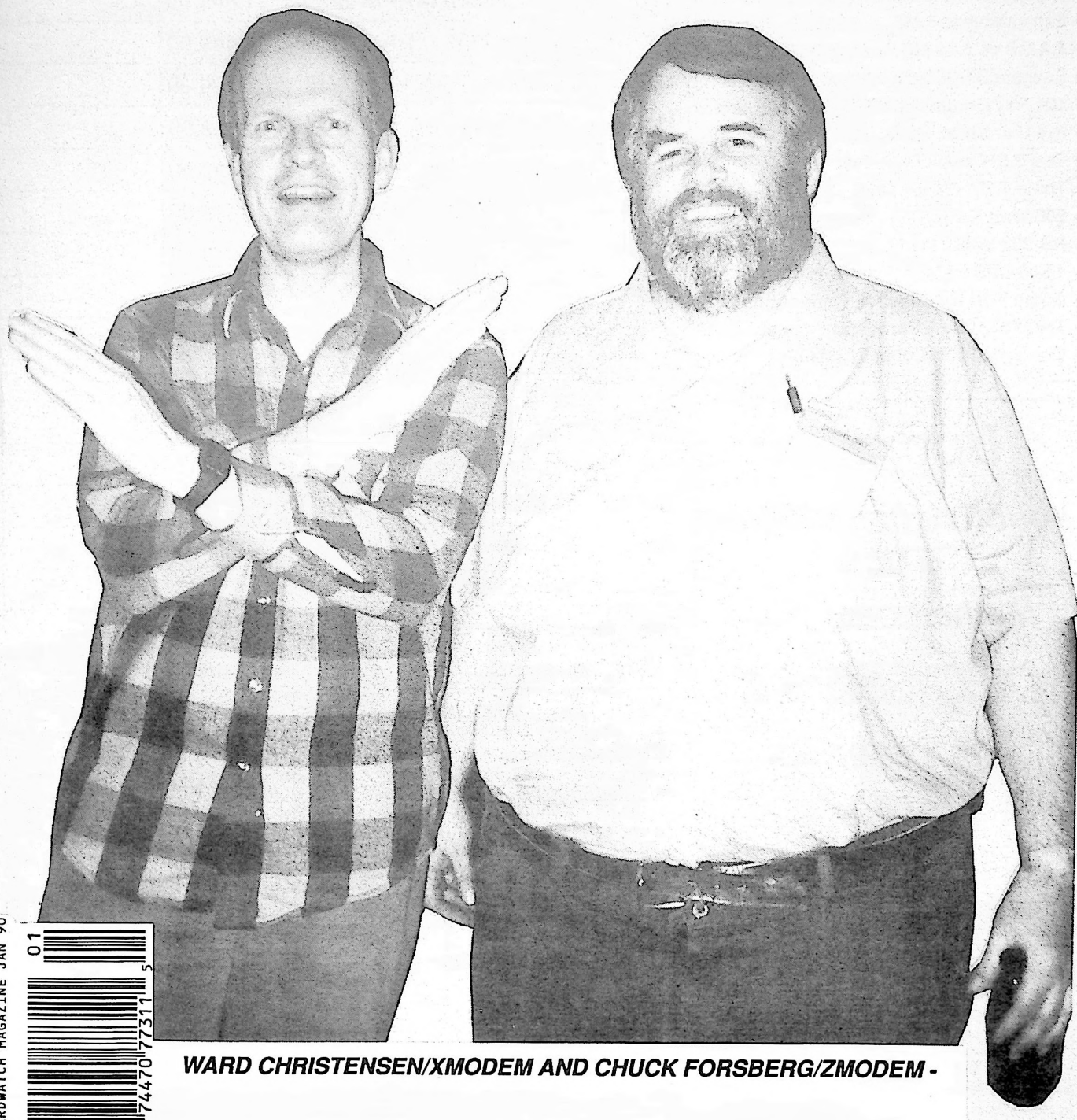


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## BOARDWATCH MAGAZINE

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## EDITOR'S NOTES

The big news this month is of course the sudden crystallization of the 9600 bps modem market. Prices are dropping. Hayes, U.S. Robotics, and Universal Data Systems have all adopted CCITT standards V.32, V.42, and V.42bis for 9600 bps operations. True, they all also continue to support their own earlier proprietary half-duplex modes. But we note that to their credit. Loyalty to early customers is a value worth shopping for.

While there will inevitably be a few loose ends regarding session negotiation procedures, the coming V.32bis standard for 14,400 bps modulation, and a few other minor technical concerns, the bottom line is that the war is over and both the consumer and virtually all modem vendors won. Vendors have a clear path to develop high speed modems. And consumers no longer have to agonize over the spectre of putting out \$1000 for a modem that may be too soon obsolete. You can now purchase a modem with full confidence that it will be able to communicate with models from a variety of vendors at very pleasingly fast rates.

We would advise any prospective buyer of a high-speed modem to specify and utterly require V.32, V.42, and V.42bis be included in the list of features before parting with their cash. Those are the standards and within a remarkably short time, you will be out wandering in the woods alone if your modem doesn't support them.

As for modem vendors who fail to heed the call, we would note that their appears to be some marvelous opportunities over in the bio-engineering field. And there are still jobs going begging in Saudi Arabia.

This sets the stage for competition between vendors based not so much on the smoke and mirrors song and dance of the past couple of years, but on such items as quality, reliability, support, and price. That's the field where competition belongs and we view these recent

developments as enormously positive for virtually every party even marginally concerned.

CompuServe's introduction of the CompuServe Information Manager and U.S. Videotel's announcement of a multi-protocol graphic terminal program continues the trend we noted in our last issue toward proprietary terminal programs. The difference in the CompuServe offering is that they probably do have a quarter of a million at least casual users. And they are offering "tool kits" for developers to implement this graphic interface in other terminal programs. And they have a ready package for both IBM and Macintosh users. They are large enough, and in this case appear generous enough with the details to essentially establish a communications protocol offering a rich graphic interface that could in the span of the next two or three years completely change the face of online services.

These graphic interfaces are no flash in the pan. The question isn't "whether." It's "how." The Macintosh has made Apple Computer a major contender even in corporate America based almost solely on the fact that it is easier to learn to use a computer, even for fairly complex tasks, if it is equipped with a graphic interface.

For online information, the question is how do you bridge a variety of platforms to convey the same graphic information? We think the CompuServe package might point the way. We would love to see a full-featured terminal program such as Procomm or Telix incorporate it in their package. The obvious extension then would be BBS software upgrading to offer similar graphic presentations using the same protocol.

The COMDEX held in Las Vegas this past November 13-17 was simply overwhelming. Nearly a million square feet of display space, over 1700 vendors, and 120,000 attendees strained the structure of a city designed to support conventions. Next year's gathering promises to be even larger. Wildcat and Hayes held a sysop party at Bally's that is shaping up as an important annual event for the online community. The number of luminaries from the BBS world attending this event astounded everyone including the hosts. Our cover

girls this month, Ward Christensen, widely regarded as the father of BBS and file transfer protocols (XMODEM), and Chuck Forsberg, developer of what is currently the overwhelming favorite in file transfer protocols (ZMODEM) met for the first time at this event and embarked on a three-hour bout of reminiscing the early days of personal computers and electronic bulletin boards - to the delight of everyone present.

This month we welcome Mr. Alfred Glossbrenner to Boardwatch as a columnist. Mr. Glossbrenner has authored an impressive number of books of service to the online community including *Master Guide to Free Software for IBMs and Compatible Computers*, *How to Look It Up Online*, and most notably *The Complete Handbook of Personal Computer Communications* - currently in its third edition.

He's also a frequent contributor to such periodical publications as *Home Office Computing* and *Computer Shopper* and he's probably as knowledgeable on the subject of shareware software as anyone in the country. We're very pleased he's decided to join Boardwatch on a regular basis and have very high hopes that the clear writing style he's noted for will give online novices a friendly introduction to the field. We hope you find his description this month of the FANSI Console shareware utility as useful as we have.

We've altered our format again slightly. We'll keep doing that till we get it right.

Jack Rickard  
Editor

## CORRECTIONS

In our story last month on the USA Today Sports Center, we incorrectly listed the voice telephone number as (800)866-9688. The correct number is (800)826-9688.





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## **FALL COMDEX 89**

When the first COMputer Distributors EXposition (COMDEX) was held in 1979, 157 companies displayed their wares at the MGM Grand Hotel (Now Bally's) in Las Vegas for 3,498 curious attendees. At this years 11th annual autumnal computer happening, 1,740 companies from 22 countries occupied 930,000 square feet of display space spread over ten sites for a crowd of nearly 120,000 hardy souls. This crowd tramped 21 miles of aisles and 32.8 acres of carpeted displays. The 63,000 hotel rooms in Las Vegas simply couldn't hold the crowd with some attendees quartered as much as 90 miles away in Kingman Arizona. Over 18,000 international visitors from 80 countries have given COMDEX a decidedly cosmopolitan flavor.

The show has grown so overwhelming that there is really no way to cover the entire thing in five days. The main themes of the show seemed to center

around the introduction of very fast 80486 machines, very small laptop computers, and a lot of communications products.

IBM had a display that could have qualified as its own computer show in most cities. To find what you wanted to see, one of the 120 IBM people on site could look up your area of interest on a directory to give you directions to the setup. All we spoke to were notably knowledgeable, forthright, and professional and more than happy to spend a few minutes discussing your particular application.

Modem manufacturers were well represented with Hayes, U.S. Robotics, Multitech, and a number of others displaying their V.32 wares. U.S. Robotics hosted a very large Monday Night Football party for dealers and affiliates on November 13.

John Dvorak and Nick Anis Jr. were on the floor promoting their new Osborne/McGraw-Hill book on PC Telecomputing with Dvorak signing au-

tographs and chatting with comm enthusiasts from a number of booths during the week.

Tuesday night, Dvorak held a delightful party at Liberace's house. The home itself is stunning and Dvorak provided live entertainment, some of the best food of the COMDEX and an open bar. Numerous luminaries made an appearance including Bill Machrone of PC Magazine, Phillippe Kahn of Borland, Bill Gates of Microsoft, the full contingent from Osborne/McGraw-Hill, and of course Dvorak and Anis. This annual party seems to be THE social event of COMDEX by almost any measure.

Hayes was on the floor in force with a large, attractive display touting their new Apple modem offerings, and most notably their introduction of a new V.32 ULTRA modem. See the related story in this issue. Hayes has come to an entirely new approach regarding electronic bulletin boards and system operators and the sysops of their support BBS, John Aitken and Randy Cooper were on hand to talk to those interested in BBS. They also had a machine



**Ward Christensen (left) and Chuck Forsberg**

logged onto their system and a genuine cork and wood "Bulletin Board" where they posted photos of notables who had stopped by.

Wednesday evening, Mustang Software and Hayes sponsored a sysop party in three adjoining suites at Bally's with beer and sandwiches. It was hoped that a few of the leaders in the BBS world might get together and perhaps discuss some sort of organization for sysops. But the large number of people who showed up jammed the three suites wall-to-wall, pretty much eliminating the possibility of any rational activities. Jim Herrere and Rick Heming of Mustang Software, along with John Aitken and Randy Cooper of Hayes acted as hosts. The attendees comprised a virtual who's who in BBS land. David Terry of Clark Development (PCBoard), Ken Goosens of RBBS, Phil Becker of eSoft (TBBS), and Wynne Wagner, author of Opus, represented the largest component of electronic bulletin board software vendors. Numerous shareware authors, journalists, and notable system operators were also on hand.

Noticeably absent was U.S. Robotics although several people mentioned that they had been invited. There appears to be a genuine effort among everyone involved to make this a "non-denominational" event.

The highlight of the evening was the introduction of Ward Christensen and Chuck Forsberg. Mr. Christensen authored the original personal computer file transfer protocol introduced in 1979 as **MODEM2**. The program has become more popularly known as **XMODEM**. Mr. Christensen and Randy Suess of Chicago are widely recognized as having founded the first electronic bulletin board system, **CBBS** on February 16, 1978. The system is still in operation today at (312)545-8086. As such, one might consider Christensen the father of electronic bulletin board systems.

Chuck Forsberg, on the other hand, occupies the other end of the file transfer protocol spectrum. His **ZMODEM** file transfer protocol has become so popular of recent years that is without a doubt the number one protocol in use in the BBS world today. Mr. Forsberg operates Omen Technology Inc. to distribute

and license **ZMODEM**. Omen Technology, Inc., 17505-V Northwest Sauvie Island Road, Portland, OR 97231; (503)621-3406. Mr. Forsberg also operates the **TELEGODZILLA** bulletin board at (503)621-3746.

Although Christensen and Forsberg had not previously met, they immediately fell into a friendly conversation that quickly moved into a nostalgic discussion on "how it all got started." This held a large group spellbound for well over two hours as the discussion covered the beginnings of **XMODEM**, **ZMODEM**, and **CP/M**. According to Christensen, the original **CP/M** machine was developed as an automated job submittal machine connected to a mainframe. This particular mainframe model was prone to crashes. The microcomputer would monitor progress of a series of jobs submitted for processing. After a crash, when the mainframe was brought back up, the micro could immediately resubmit the next job in series - effectively beating everyone else in the company to the punch. It eventually evolved into the Control Program for Microcomputers (**CP/M**) - the most popular operating system for micros until the advent of PC-DOS for the IBM PC.

**XMODEM** apparently resulted from some experiments with a tape recorder actually. Christensen and company noticed that they could record the answer tone from a host system on tape and use it to "trick" their own terminal hardware into thinking it had a connect. The next step involved transferring data onto the tape from the micro. The tape unit was then used to transfer the data to a second machine using the same process. **XMODEM** was designed to detect and correct errors encountered in the transfer. It evolved into a system for transferring data files directly from one micro to another via modem. And from there, the concept of the microcomputer as a messaging and file storage "host" came quite naturally.

By all appearances, everyone at the gathering had an enormously enjoyable evening. Plans are already afoot for a bigger gathering next year. A larger convention room along with more widespread sponsorship from several companies should pose the **COMDEX** Sysop Party as the online event of the



year. And it may actually serve as the beginnings of a forum for the online community that is tied to no particular software, hardware, or theology. If the proponents of this can maintain a truly non-denominational atmosphere, the mythical "sysop organization" that has failed so many times in the past to materialize may be on the verge of happening spontaneously. We hope so. Make plans to join us there next year.

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## **HAYES MODEMS - RESUMING A LEADERSHIP ROLE**

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Hayes Microcomputer Products did not invent the telephone modem. British Telecom is actually credited with that milestone circa 1954. But the confusion is understandable. During the late 1970s when microcomputers were in the throes of birth, Hayes stepped forward with a workable, reliable 300 baud modem that became the overwhelming standard in personal computer communications.

Notably, this modem featured an intelligent control language known as the Hayes AT command set. This language allowed the operator to instruct the modem from the keyboard to dial a telephone number, hangup, reset, or answer the telephone among a number of other housekeeping functions. These commands were eventually implemented in almost all communications software allowing these functions either completely automatically or at a mere keystroke.

As a result, within just a few years it reached a point where manufacturing a modem without claiming 100% Hayes compatibility was tantamount to offering a line of window screens and draperies for submarines. Somewhat of a thin market.

Very few modems actually achieve 100% Hayes compatibility despite their sales literature. And Hayes has retained a reputation for top quality rock-solid reliability. They have also enjoyed



### ***The New Hayes ULTRA 9600 bps Modem***

some success in extracting license fees from modem manufacturers purporting to be Hayes compatible via their *Heatherington '302* patent. AT&T, IBM, U.S. Robotics, Microcom, Racal Vadic, and Practical Peripherals have all paid license fees enabling them to include the Hayes AT command set as part of their modem's operating features.

Despite this enormous early advantage, Hayes itself has wandered alarmingly over the past few years. Initially they ignored the BBS/online services community entirely - focusing on the initially more lucrative corporate market. They were slow to pick up on the developments in higher speed modems operating at 9600 bps and up. When they did finally introduce a high-speed 9600 bps unit, it completely ignored the CCITT modulation standard for 9600 bps modems - CCITT V.32. As a result, Hayes V-Series Smartmodem owners were not feeling very smart - and were noticeably isolated in a relatively small V-Series world within the online community.

Recently, they've even entered the manufacture of low cost modems for the PRODIGY service that surprisingly

don't completely adhere to their own AT command set standard. And they have become known fairly widely as requiring a premium price for their quality and reputation. Thrifty buyers have gone elsewhere to settle for a little less modem for a lot less money.

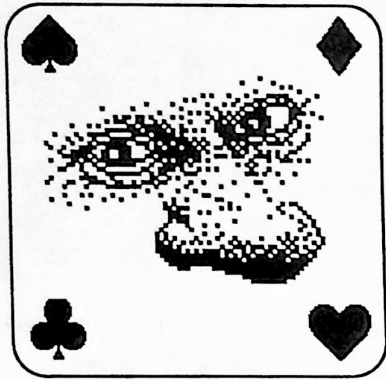
But the hiatus may be over. At this fall's COMDEX, held in Las Vegas November 13-17, Hayes arrived in full sail, flags, and regalia with a wide array of new product announcements designed to restore the company to its leadership position in the communications marketplace.

Changes included across the board price cuts on all models of 8% to 43% averaging about 28% - bringing their product offerings back in line with reality and providing some pretty intense price pressure on the budget modem manufacturers.

A flurry of new product introductions includes the new ULTRA 9600, a series of 2400 bps modems for the Apple Macintosh II series, an enhanced high-speed serial port product for IBM com-

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patibles, and inclusion of the recently purchased JT FAX and Practical Peripherals product lines.

Most dramatic is the announced introduction of a new high-speed modem they have titled the V-Series **ULTRA Smartmodem 9600**. Priced competitively at \$1199, the **ULTRA** finally includes the CCITT V.32 modulation recommendation for 9600 bps full-duplex communications. This essentially brings the Hayes 9600 series into line with most other modem manufacturers - allowing true 9600 bps connections between modems of different vendors. A Hayes **ULTRA** can now communicate with a U.S. Robotics HST Dual Standard, Multitech V.32, Racal Vadic V.32, or any other 9600 bps modem implementing CCITT V.32 at the 9600 bps rate. Previously, modems from different manufacturers had to fall back to 2400 bps rate to talk to each other - largely voiding the advantage and additional expense of a 9600 bps modem.

The good news for existing Hayes V-Series modem owners is that the **ULTRA** also communicates with the

existing installed base of V-Series 9600 bps modems using their proprietary fast turnaround "ping pong" method. This earlier model did not support the V.32 standard. Effectively Hayes has then established its own "dual standard" similar to the U.S. Robotics move to support both V.32 and their own HST series. With the introduction of the **ULTRA**, the price of the old V-Series 9600 has been cut to \$999. So the **ULTRA** ties everything together - providing communications with existing V-Series, as well as V.32 modems from any manufacturer, at the higher data rates.

Additionally, the new model supports the new CCITT V.42 and V.42bis standards. V.42 is an error correction protocol that uses either the Link Access Protocol or the Microcom Networking Protocol (MNP levels 2-4) to correct data errors induced by noise on the telephone lines.

V.42bis is a remarkably powerful data compression algorithm allowing compression ratios as high as four to one using several methods - including the ubiquitous MNP Level 5. But in con-

nections with other modems implementing V.42bis, throughputs can exceed the MNP-5 performance by as much as 30%. On an ASCII text file, this can boost data throughput to an apparent theoretical maximum of 38,400 bps. On the already compressed ARC or ZIP files common in the BBS world, this compression is not nearly so dramatic.

Finally, the **ULTRA** provides support for packet-switched networks such as Telenet and Tymnet. A built-in packet assembler/disassembler Hayes terms the **TRIPLE X PAD** allows up to four simultaneous online sessions with hosts operating on a packet-switch network using their Smartcom communications software. Logon to DOW JONES, SPRINTMAIL, and COMPUSERVE simultaneously if you have a need to.

For most of us, the significance of the **ULTRA** is true V.32 9600 bps connections including error correction/compression at the MNP-5 level or better. Availability for the new **ULTRA** model is expected during the first quarter of 1990.



Hayes has also apparently seen the light regarding the electronic bulletin board community. John Aitken and Randy Cooper have engineered a toll-free multi-line Hayes Support bulletin board system at (800)US-HAYES using TBBS software in combination with their modems. This system provides support/discussion areas for sysops of nearly every persuasion including Wildcat, TBBS, PC Board, and other popular BBS packages. It also provides Hayes product announcements and press releases and some generally interesting message/file areas.

Just as dramatically, Hayes has introduced a special 50% sysop discount price for the new ULTRA model at a very competitive \$599. This compares very favorably with the U.S. Robotics sysop price of \$725 for their Dual Standard HST.

For the Apple Macintosh II family, Hayes introduced a slew of new products including *Smartcom II* communications software, a V-Series Smartmodem 2400M internal modem card, and HayesConnect Local Area Network software. The new modem features the V.42, V.42 bis, and X.32 features allowing error correction, data compression, and packet-switch operations introduced on the IBM modems. The cards are priced at \$699. The new products work on Macintosh II, IIx, IIcx, and IIci models.

The HayesConnect software offers some interesting features across an AppleTalk network. Up to five of the Smartmodem 2400M modems can be installed on a single Macintosh on the network. Terminals anywhere on the network can then queue up for a shot at using any of the five modems to dial out and it won't load down the machine acting as server at all.

Hayes has also introduced a rack-mount device priced at \$999 list (\$500 to qualifying information system operators). The unit is unique in that you do not use internal modem cards to add lines. Rather, you pull the face plate off existing external modems and slide them into the chassis. The modems plug into the chassis for both AC power and the modular telephone connection. A switch is available for each modem to place a 22-ohm resistor across tip and

ring lines. This allows a sysop to place a telephone line in a "busy" state by flipping a switch. The unit is not only of the expected highest quality and rugged construction, but actually looks a bit elegant in black and brushed aluminum. If your system has sprouted additional lines over the past year or so, you may be enjoying a growing farm of modems, RS-232 cables, telephone cords, and power cables resembling a cantaloupe patch. This rack unit can quickly cut down the clutter.

Hayes has also been developing an interface card to marry IBM PC XTs, ATs, and compatibles to the emerging Integrated Services Digital Network (ISDN). ISDN will offer a basic rate interface to residential and small business customers providing two 64 kbps and one 16 kbps digital data channels on a single telephone line at an estimated price of 1.5 times your current telephone line charge. The Hayes ISDN PC Card will allow you to transmit data across such networks at 64 kbps on one channel while talking voice on the other for example. It provides an RJ-11 modular jack allowing you to connect a standard analog telephone set to the card - but the voice travels in digitized form for much higher audio quality. It works with existing communications software via the Hayes AT command set and should raise the ante on online data transfer speeds significantly when ISDN arrives. ISDN has not been widely implemented yet and Hayes has not announced a price for the card. But they have been using it in field trials since March of 1987.

The bottom line is that from what we can glean from their moves late in 1989, Hayes is back. And for operators of small information services and BBS, John Aitken is making some significant headway within the Hayes corporation as an advocate for the BBS community - to the distinct future benefit of both Hayes and the system operators. Hayes Microcomputer Products, Inc., 705 Westech Drive, Norcross, GA 30092; (404)449-8791 voice; (800)874-2937 data.

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## TELEBITS

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### POSTSCRIPT PRINTING FROM SOFTWARE

The number of HP Laserjet Series II printers available is increasing dramatically and virtually every notable printer manufacturer does a clone of it now. A Brother HL-8e, for example can be had for about \$1800. The problem with the Series II printers is that they do not use the Postscript printer language which offers significant advantages to those interested in desktop publishing. And Postscript printers have been quite a bit more expensive. Brother offers an HL-PS model - for about \$2000 more.

And for most day-to-day use, an ordinary Laserjet Series II clone works fine/ The Brother offering emulates IBM Proprinter, Epson, HP Series II and even the HP Plotter. But occasionally, PostScript output is nice to have.

Custom Applications Inc. sells a software Postscript driver for the HP Laserjet Series II printer world titled *FREEDOM OF PRESS*. The package supports all 35 fonts supported by an Apple Laserwriter. Essentially, it takes postscript files from disk, converts them into graphic images, and prints them on the laser printer. The printer must have enough RAM to print a full page graphic image - typically 1 MB.

Ventura Publisher is very easy to use with this package. Simply specify POSTSCRIPT output to a diskfile name and print the file. Then use FP to print the file. The program takes a few minutes to print the file. But the output matched precisely that of an Apple Laserwriter. And at quite a bit less expense.

Drawbacks? Well the program will not take your breath away by virtue of its incredible speed. Worse, it takes up 4 MB of hard disk real estate. And the \$495 list price (widely discounted), is a not inconsiderable factor. But on the whole, this was the best performer of several such utilities we've played with. And to print out the occasional newslet-

ter proof we need, it's a much less expensive solution than another \$2000. Custom Applications, Inc., 900 Technology Park Drive, Bldg 8, Billerica, MA 01821; (800)873-4367.

## TECHNOLOGY COMES TO THE TOILET SEAT

Infomat Magazine, an online publication recently published a story that caught our eye. It seems that inventor James Novack of Los Angeles claims that the number one cause of marital strife is inconsiderate husbands leaving the toilet seat up after performing their act of purification. He alludes to the fact that wives have a tendency to fall in and it apparently makes them furious.

He's devised a device that attaches to the underside of the toilet lid and beeps approximately 40 seconds after the lid is raised. By his calculations, 40 seconds is the average time it takes to go wee-wee. A miracle of modern technology. The device is \$9.95. Beep Seat, P.O. Box 241532, Los Angeles, CA 90024; (213)305-1029.

## COMPUSEVE JOINS GRAPHICS TERMINAL PROGRAM BANDWAGON

As noted in our December issue, the number of online services requiring you to purchase and use their own proprietary terminal program to access the service is mushrooming quickly. The payoff is more intuitive graphic interfaces. CompuServe has announced availability of a similar program titled CompuServe Information Manager (CIM). It uses a new protocol termed Host-Micro Interface (HMI). The program is currently available for MS-DOS computers and a Macintosh version is due within a few months.

The CIM program provides a graphic interface to CompuServe's various information offerings. The interface incorporates pull-down menus, light bar cursors, and dialog boxes to simplify the awkward paradigm currently in use on CompuServe to navigate the system. The result is a "kinder and gentler" CompuServe. The program is priced at \$24.95 which includes a \$15 usage credit. Enter GO ORDER on the service to order your copy.

The service has no intention of abandoning its current interface. The CIM interface will be optional, and we think popular.

*PC Magazine* offers an online service that operates as part of CompuServe titled *PC MagNet*. The area provides a library of utilities appearing in the magazine over the past few years and many are really quite good. Editorial and programming forums also offer a wealth of information on the microcomputer industry. They have also developed a terminal interface program they call *PC MagComm* based on the same Host Micro-Interface used by CompuServe's CIM program. The *PC MagComm* program, however is freely available for download with no charges other than the usual connect time at \$12.50 hourly. CompuServe Information Service, 5000 Arlington Center Blvd., Columbus, OH 43220; (614)457-8650.

## GENIE TO INTRODUCE 9600 BPS ACCESS

General Electric Information Services intends to upgrade its current modem network by adding 324 new 2400 bps nodes bring the total to 393 access nodes by January 1990. This will provide 24 more 2400 bps access points than BT Tymnet, recently the largest network offering 2400 bps. The nodes will accommodate 300, 1200, and 2400 bps connections on the same access number - simplifying log-on script development. The company is also experimenting with 9600 bps links using the CCITT V.32 recommendation and plans on making those available as well sometime during the first quarter of the year.

GENie has added a new database service titled the Executive Desk Register. Compiled by Demand Research Corporation, the EDR database contains a complete record of all 5000 companies traded on the New York Stock Exchange, the American Stock Exchange, and the NASDAQ National Market System. Entries include full company name, address, telephone number, Chief Executive Officer, ticker symbol, and exchange where their stock is traded. No surcharge applied.

GENie, online since October 1985, now claims 167,000 individual subscribers throughout the United States, Canada, and Japan. The service recently completed a link allowing Canadians in 166 cities throughout Canada to access GENie via Telecom Canada's iNet 2000 Gateway. GENie is available on iNet at \$9 Canadian per hour for 1200 bps service and \$15 Canadian per hour for 2400 bps access. For information on Canadian access through iNet 2000, call the iNet 2000 Customer Assistance Center at (800)267-8480 in Canada or (613)781-5128 from the U.S. side. GENie was already directly available in Calgary, Montreal, Toronto, and Vancouver at standard U.S. Rates.

The GENie service is available at \$29.95 which includes a \$15 credit. U.S. subscribers pay \$6 hourly for 1200 bps service and \$10 hourly for 2400 bps access. GE Information Services, 401 N. Washington St., Rockville, MD 20850; (800)638-9636.

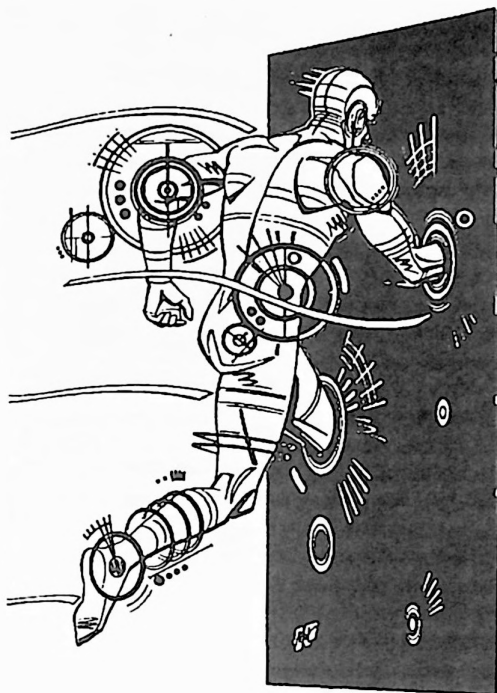
## HAYES RELEASES NEW SERIAL PORT SPECIFICATION

For many PC owners, the higher speed modems now offered by a number of manufacturers introduces a new and unexpected problem - their PC can't keep up. The serial port for IBM compatibles was designed during a period when the modem was the bottleneck and 2400 bps was considered very racey. These serial ports typically used an 8250 chip known as a UART (Universal Asynchronous Receiver/Transmitter) rated at a top speed of 9600 bps.

At modem speeds approaching 38,400 bps, the legs on the little 8250 chip are just too short to hold the pace. This results in lost data. During protocol file transfers, these "under-runs" cause re-transmitted blocks each time an error occurs - dramatically lowering throughput. Even late model AT and 386 class machines typically use a 16450 UART chip that offers but marginal improvement.

The solution for the technically inclined is simply to replace the 8250 or 16450 chip with an NS16550 UART chip. The chips are pin compatible, meaning that you can simply remove one chip and simply insert the other. The NS16550 is fairly widely available for about \$18-





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Multi-player action & adventure games:

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|----------------------|---------------------|
| (1) Infinity Complex | (2) Flash Attack    |
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| (7) Quest for Zen    | (8) Kyrandia        |
| (9) Poker            | (10) Othello        |
| (11) Chess           | (12) Checkers       |
| (13) Sea Battle      | (14) Robowars       |
- plus much more!

### News!

- (1) UPI Newswire
  - (2) USA Today Decisionline
  - (3) BBX News from Byte Magazine
  - (4) NewsBytes
  - (5) InfoMat Magazine
  - (6) BoxOffice MoviTrak & OnVideo
  - (7) ODMR - Online Digital Music Review
  - (8) Business Sense
  - (9) Zip Beep Humor Magazine
  - (10) BBS Telecomputing News
  - (11) Boardwatch Magazine Online
- plus much more!

### Downloadable Files!

Thousands of public domain, shareware, and freeware files that you can download.

### Special Interest Groups (SIGs) and Message Boards

Public Message Boards for posts and replies that cover a diverse range of topics.

PC-Pursuit, StarLink, and other local access numbers are listed online.

If you want to try the MedCom BBS now, use your modem to call: (714)996-6666.

Several **FREE** minutes of chat, games, news, and downloads on every call!

To open your account today, call the MedCom BBS systems and create a User-ID for yourself. Then, complete and return the following:

User-ID: \_\_\_\_\_

Check one:

\_\_\_\_\_ 3 months for \$20      \_\_\_\_\_ 12 months for \$60

Check one:

\_\_\_\_\_ Check Enclosed

\_\_\_\_\_ VISA      \_\_\_\_\_ MasterCard

\_\_\_\_\_ Discover      \_\_\_\_\_ American Express

Credit Card Number: \_\_\_\_\_

Exp Date: \_\_\_\_\_ Issuing Bank: \_\_\_\_\_

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone Number: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

After you have completed the above, mail to:

MedCom Information Systems, Inc.  
6312 East Santa Ana Canyon Road #361  
Anaheim Hills, CA 92807

BW

22. The chip incorporates a 16-byte FIFO (First In/First Out) buffer to prevent data errors. JDR Microdevices offers the chip at \$17.95 and you can order online via their BBS at (408)559-0297.

This addresses some of these speed problems but it doesn't really completely eliminate them. At 38.4 kbps, the average 80286 microprocessor is spending 79% of its time dealing with the serial ports. With a couple of programs operating in the background, you're out of processor steam as well as serial port capacity.

To address this, Hayes has announced a public domain specification for an **Enhanced Serial Interface** device. This specification establishes a new dual serial port standard based on the NS16550 UART with a full 1 KB FIFO data buffer and a dedicated co-processor that can directly move data into memory, completely freeing the computer CPU chip for other duties.\*

Hayes offers **Enhanced Serial Port** hardware products for the IBM Microchannel, IBM XT/AT, or Extended Industry Standard Architecture (EISA) bus machines. The XT/AT version of the card will retail for \$299 while the Microchannel version will move at \$349.

Existing communications software can use the device to take advantage of the built-in 16550 UART and 16-byte data buffer to increase performance of 9600 bps modems. But real gains can be made using software designed specifically to take advantage of the onboard co-processor and 1 KB FIFO buffer. Microsoft commended Hayes for making the specification public domain - essentially opening the door to cheap asian clones and widespread software support and coincidentally solving a bit of a communications bottleneck for OS/2.

The need for this new serial port standard is not widely recognized but it is very real. It can be quite disillusioning to pay a thousand dollars for a modem touted to bring glamorously higher connect speeds and then find that your actual throughput is not as advertised. And inevitably it will infuriate many customers to be told their 33 MHz 386

computer is the culprit and can't keep up. But the problem is very real and will start to show up as these higher speed data pumps move into the marketplace. Hayes is demonstrating good technical leadership in designing and placing into the public domain a good alternative port. Hayes Microcomputer Products, Inc., 705 Westech Drive, Norcross, GA 30092; (404)449-8791 voice; (800)874-2937 data.

## HANDBOOK OF PERSONAL COMPUTER COMMUNICATIONS

St. Martin's Press has just published an all-new third edition of Alfred Glossbrenner's **COMPLETE HANDBOOK OF PERSONAL COMPUTER COMMUNICATIONS** modestly subtitled **THE BIBLE OF THE ONLINE WORLD**. With 275,000 copies of the first two editions already on the street, perhaps so.

Glossbrenner currently has fourteen book titles under his belt including the two previous editions of this book, his **MASTER GUIDE TO FREE SOFTWARE** and **HOW TO LOOK IT UP ONLINE**. This latest book is reasonably priced at \$18.95 and covers the basics of assembling the requisite modem, cables, software and paraphernalia needed to get on the wires. It also provides some excellent background on online utility services, what features are important and how to use them, and descriptions of the major providers including CompuServe, GENie, Delphi, BIX, People/Link, Quantum, Prodigy, Minitel, and so forth. In fact, we found an excellent description of the state of the videotext industry with some fairly insightful remarks on Prodigy, Bell Gateways, Canada's Alex, and their future prospects.

A fascinating chapter on Telex provided a wealth of background material on this world-wide network of ancient 50 bps machines that is still in operation and likely to be for some time to come. The chapter includes instructions on how to send Telex from your E-Mail service, how to bridge messages from your E-Mail service to someone on another E-Mail service by routing through Telex, and even mentions a plug in-circuit card for your PC that allows transmission of both Telex and facsimile messages directly.

The book is riddled with little boxes featuring **ONLINE TIPS**. These provide little gems of information - usually including a vendor name and phone number providing some unique or useful service. The boxes are set off with a thin black line that looks odd and does little to set off the information from a stylistic point of view. But the tips are precious - I'd like to have them all in a little index card file.

Chapters on telecommuting, electronic bulletin boards, international dialing, online shopping, and even on obtaining a college degree online are provided. A section on packet radio provides info on using a modem over the air waves and bypassing the telephone company altogether.

Finally, at the end of the book is a series of coupons and offers from online services. An example is a subscription to the Byte Information eXchange (BIX) at \$25 quarterly instead of the usual \$39, an hour free time on Compuserve, and waived signup fees for GENie, Dow Jones News, and MCI Mail.

Glossbrenner's third edition is likely his best yet. Though rather plainly typeset, the book is very reasonably priced at \$18.95 and provides that much value and more. The clear writing style provides a good introduction for novices. And experienced users will find a wealth of valuable tips as well. St. Martin's Press, 175 Fifth Avenue, New York, NY 10010; (800)221-7945.

## HOW MANY MODEMS ARE THERE?

Prodigy, Minitel Services, and the Regional Bell Gateways have spent millions in marketing their services. Has it raised the public consciousness of online activity? Apparently so. **LINC Resources, Inc.**, a Columbus Ohio educational research and information services organization, estimates that 22.4% of 102 million households now have computers (22,848,000). Further, the number of household computers equipped with a modem is up markedly to 33% or 7,539,840. Yet only 13% of those computers (2,970,240) use commercial online services such as CompuServe, GENie, MCI Mail, and Prodigy. What are the other 4,596,000 modems doing?

## TELECOMMUNICATION SYSTEMS

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## 90,000 FILES

For Your IBM PC, Mac or Amiga

As Close As Your Modem  
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**EXEC-PC, the country's largest electronic Bulletin Board Service (BBS), has the most extensive online collection of software available anywhere. Yours for the asking!**

*"Exec-PC, the biggest, meanest, most off-dialed and audacious BBS this side of Silicon Gulch!" Milwaukee Magazine*

*"How important is the Exec-PC BBS? To borrow a line from a famous hamburger chain, I was the 1,282,770th caller served. And I do mean 'served.' Exec-PC is perhaps the premier BBS in the nation for exchanging software." BYTE IBM Special Edition*

*"Exec-PC, the bulletin board answer to SuperStation WTBS, connects PC users continents apart." PC World*

*"One of the best is Bob Mahoney's Exec-PC out of Shorewood, Wisconsin..." PC Magazine*

*"They provide one of the largest, most extensive libraries of public domain software in the world." Denver PC Boardwatch*

*"Exec-PC Network is by far the largest BBS we've ever seen. You say you want files? This board has them - whatever kind you want... In addition to having one of the largest selections of public domain software, this BBS is a good source for technical information and help." PC Resource Magazine*

### WHAT YOU COULD HAVE

Would you like public domain and shareware word processor programs, communications programs, or excellent database management systems? How about personal money managers, or General Ledger programs? If that is not enough, look at the 3000 games and 15,000 free business oriented programs, utilities, tutorials, and reviews. This gives you everything from hard disk reorganization and backup to stock market management systems. We also maintain the *entire PC-SIG collection* online, the 1400+ diskette collection of public domain software from California.

### WHO HAS IT?

Exec-PC owns and operates the nation's largest electronic Bulletin Board System. Through our BBS, our huge software collection is available to anyone who has access to a modem and a telephone line. We have more than 90,000 individual files available for immediate download to your computer, 24 hours a day, every day.

### WHAT IT IS

The BBS consists of a large computer with BIG disk drives (more than 6 gigabytes!) and many phone lines connected to it. The computer currently has 100+ phone lines, allowing it to talk to 100+ callers at once; it receives about 3000 calls per day. Using the BBS is easy, since it is menu driven and you simply choose what you want to do.

### WE SURE HAVE FILES

A typical user will call the BBS, ask the BBS to show what files are new since his or her last call, find files of interest, then transmit those files across the phone line. After hanging up, the caller can examine and use the new software.

### WE SURE DO TALK

Our BBS also has an active conference system where thousands of people share ideas and solutions. Some conferences include: PC General Topics, Communications, For Sale, Programming, Desktop Publishing, LAN, Graphics, Hardware Speedup, CAD/CAM, Private e-mail, etc. Why pay expensive consultants when there are hundreds of experts available in our forums and conferences?

### HOW TO CALL THE EXEC-PC BBS

1. Set your modem for 8 data bits, No Parity, 1 stop bit.
2. Dial 414-789-4210.
3. The BBS will ask for your name, then you will be guided into the menus.

### IT IS FREE, BUT

You can call the BBS at any time without registering. You can tour the system, read messages, and download some of our files. For greater access privileges you may register at the following rates: \$20 for 3 months or \$60 for one year. There are no hourly or hidden fees! You may subscribe online with VISA or MC, or by credit card, check or money order with the form below.

### Exec-PC

P.O. Box 57 Elm Grove, WI 53122  
Voice Orders 414-789-4200 **BBS 414-789-4210**



Prices & Specifications subject to change without notice.

### Registration Form

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**YES!** Register me on the Exec-PC BBS for full access to the country's largest collection of software plus thousands of informative messages and conferences.

☐ 1 Year \$60

☐ 3 Months \$20

☐ Check Enclosed

☐ Visa



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Credit Card Account # \_\_\_\_\_

Signature \_\_\_\_\_ Expires \_\_\_\_/\_\_\_\_

## BBS 414-789-4210

Name \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone (\_\_\_\_) \_\_\_\_\_

Company (optional) \_\_\_\_\_

Name you will use for Logon to BBS (required)

First \_\_\_\_\_ Last \_\_\_\_\_

Password \_\_\_\_\_



Hard to tell. Many are likely doing very little. But clearly, the universe for small, reasonably priced electronic bulletin board systems is larger than that enjoyed by the more expensive commercial services.

### U.S. ROBOTICS ADOPTS V.42 and V.42bis

U.S. Robotics announced addition of CCITT V.42 and V.42bis compatibility to their high-speed modem product line. The company will also upgrade existing Courier HST 14.4 kbps, Courier Dual Standard and Courier V.32 modems beginning this month at a cost of \$50 per modem for those purchased prior to October 1, 1989. You must return the modem to the factory for the upgrade.

CCITT V.42 is an international modem standard that allows modems to perform error correction of transmitted data "on the fly" as it is transmitted. This eliminates the need for software protocols such as XMODEM or ZMODEM to make sure the data gets there accurately. Two modems implementing V.42 take care of the error correction between themselves at the hardware level. The actual algorithms used are based on the Hayes-proposed Link Access Protocol or the Microcom-developed Microcom Networking Protocol (MNP) levels 2-4. Essentially this means that a significant improvement in error correction is available using V.42 but it is still compatible with MNP modems as well.

CCITT V.42bis provides the additional ability to compress data. The data the modem receives from your computer is "compressed" to as little as 1/4 of its original size and transmitted over the wires to the modem at the other end. The receiving modem then "expands" the data to original form before passing it to the attached computer. The effect of this is that by doing a little processing on each end, the amount of data actually sent over the telephone wires is cut to as little as 1/4 of the original file size. As a result, apparent throughput increases by as much as four times, depending on the type of file transmitted. With a 9600 bps connection, this can make your system appear for all the world as if it is transmitting data at 38,400 bps.

V.42 can be thought of as implementing in hardware the error correction normally performed by a file transfer protocol to account for the dropped bits caused by line noise, lightning, and equipment glitches in the telephone system. V.42bis can be thought of as performing the same file compression now done manually by many BBS users using utilities such as ARC, PKZIP, and LHARC. It make strike some as odd, but once a file is archived using PKZIP for example, the V.42bis feature won't really compress it much further. Data can only be squeezed down so far before no further compression can be gained using economical measures. But in many cases V.42bis may reduce the need to archive many files at all.

U.S. Robotics also announced a 27% decrease in the price of the Courier V.32 model only. U.S. Robotics, Inc., 8100 McCormick Blvd., Skokie, IL 60076; (800)DIAL-USR.

### FREE PAY TELEPHONES

Phone Spots Inc. of Weston Missouri has patented an invention that places recorded advertising messages in the four-second interval between rings. The first application is termed Free-phone Service. Telephones will be installed in airports allowing free three-minute local calls -- if they can listen to the advertising message.

### SEALINK - MISSION ACCOMPLISHED

Recall from a recent issue that we reported the difficulties various mail software vendors had in making the connection to System Enhancement Associates SEAdog electronic mail package. The BinkleyTerm, Front Door, and D'Bridge mail systems had all had difficulty connecting to SEAdog mailers using the SEALink Overdrive and Resume functions largely because SEALink was not documented. Reverse engineering had produced variable results - none completely satisfactory.

The authors of the various mail programs were frustrated and understandably weary of taking the heat from disgruntled customers. On October 1 they banded together to announce they were dropping support for SEALink.

For Fidonet, this was much like agreeing to use the English alphabet to write - only let's throw out W,X,Y,Z,Q, and all the vowels because they cause difficulties and they're awkward to use. The 6600 some-odd amateur Fidonet BBS systems depend on common protocols to move the mail, transfer files, and so forth. Most sysops are accustomed to using their favorite mailer, and most would rather fight than switch. But the action did bring the difficulties to a head.

In an effort to avert disaster, a tiny group led by Phil Becker of eSoft Inc., met in a "Black Monday" lunchtime meeting on October 2 to try to hammer out a solution. Telephone conferences throughout the afternoon led to a compromise whereby the BinkleyTerm team of Perriello, Hartman, and Applegate, would support SEALink if they could get appropriate documentation for the protocol. Chris Irwin, of D'Bridge, and Joaquim Homrighausen, author of Front Door, somewhat less enthusiastically agreed to go along IF the documentation was accepted by the Fidonet Standards Committee. Thom Henderson, head of System Enhancement Associates and author of SEAdog and SEALink, agreed to release proprietary source code on a non-disclosure basis to a neutral third party - in this case Becker - to support the BARK/SEALink documentation effort. Essentially, this agreement bought some time but little else. Without delivering some pretty good documentation for SEALink quickly, the agreement couldn't last and the Black Monday strategy team would fail.

Becker and his erstwhile assistant, Gary Funk, immediately went to work on a document to describe the SEALink protocol. Putting aside pressing software development projects of their own, the two poured approximately 70 manhours of effort into the specification and on October 19, slightly over two weeks later, Becker delivered a draft document. Within a single day, Bob Hartman and Vince Perriello had coded and tested a new SEALink implementation to their BinkleyTerm mailer and reported that it worked perfectly on all counts. By the time you read this beta copies of BinkleyTerm should be available and a new release imminent.

After some minor corrections, the draft document was submitted to a working group appointed by the Fidonet Standards Committee consisting of the authors of the various mailers. According to Thom Henderson, head of System Enhancement Associates and author of the SEAdog mail program, "This is by far the best documentation of a protocol ever done within Fidonet - bar none. Phil Becker has really nailed down the details of how SEALink works to a much greater degree than the original FSC001 document describing XMODEM and MODEM 7, which really left a lot up to judgement calls on the part of the programmers. This document should set a new standard for minimum level documentation within Fidonet."

From start to finish, the entire SEALink fiasco of 1989 was wrapped up in less than 30 days - after languishing for nearly a year. There's a lesson in here somewhere and it disproves that common perception that if all the sysops in the world were laid end-to-end, they might find it enjoyable but they still couldn't reach a conclusion. Fidonet owes Phil Becker, Gary Funk, the Binkley Team, and Henderson a big thank you for a job well done.

## TELETRIVIA

The U.S. Air Force has found such a deal on facsimile machines. They purchased 173 machines along with training and manuals from Litton Industries for a scant \$73 million. That works out to about \$421,965.31 per unit. But the Air Force insists the machines themselves were only \$76,000 each. The AN/UCX-4 facsimile machine uses a special paper at \$100 per roll. Those cunning men in blue.....British Telecom purchased Tymnet from McDonnell Douglas for \$355 million. It is now officially known as BT Tymnet....In the ongoing long distance rate skirmish, AT&T has extended their *Reach Out America* program. For an additional \$0.55 per month, you gain a 20% discount from evening rates in effect from 5:00 PM to 10:00 PM and 5% from daytime rates. The one glitch on *Reach Out America* - it's a bit like the Roach Motel. You can sign on, but it can be difficult getting off. We changed one line to MCI three months ago. We're still paying the Reach Out

America item on each monthly bill.....A Pelouze Scale Co. survey indicates that home offices will account for 15% of all 1989 retailer sales of office supplies and equipment - compared to 9.6% in 1985.

## MINITEL/NAPLPS/ASCII TERMINAL PROGRAM

U.S. Videotel of Houston gave the concept of graphic interfaces for online services a big boost with the announcement of a new terminal program for PC users. The software will provide terminal operations for the Minitel Teletel standard, the North American Presentation Level Protocol Syntax (NAPLPS), and straight American Standard Code for Information Interchange (ASCII) in a single package. The program will be priced at less than \$35.

U.S. Videotel has operated Southwestern Bell's Sourceline gateway project and has just inked an agreement to operate Canada's Alex online service. Sourceline uses the Minitel protocol while Alex uses the NAPLPS standard.

## NIST TIME SERVICE

Need a reasonably accurate time fix - now? The National Institute of Science and Technology operates radio station WWV in Boulder Colorado to broadcast a time signal familiar to HAM and shortwave radio listeners. They are chartered by law with maintaining the official civilian time in the United States. Not everyone knows that they also have a telephone access to the WWV broadcast. Dial (303)499-7111. Coordinated Universal Time announced on the minute with an accompanying mark tone.

## JIM BUTTON UNMASKED IN NATIONAL GEOGRAPHIC

The December issue of NG reveals the true identity of the world's most successful shareware author in a story about economic development in Washington state. "Ex-IBM technician (Jim) Knopf started his own company to produce computer programs called ButtonWare -- button being the translation of his German name." The paragraph reports that 150,000 people have regis-

tered Button/Knopf's products at an average fee of \$70 per copy. OK, we'll do the arithmetic for you -- \$10.5 million.

## NEW LAPTOP MODEMS

The price of 2400 bps modems for laptops is falling, albeit much more slowly than similar external modems. GVC-Chenel has introduced two new 2400 bps internal laptop modems at \$269 each. The SM24T fits Toshiba laptops while the SM24Z fits Zenith laptops. The units feature Complimentary Metal Oxide Semiconductor (CMOS) design for low power consumption. Perhaps more innovative is an external power switch for the modem itself - allowing you to switch off the modem when not in use to reduce battery drain. GVC-Chenel Corp., 99 Demarest Rd., Sparta, NJ 07871; (201)579-3630.

## ROAD WARRIORS SURVIVAL PACKS

Laptop communicators live and die by the RJ-11 telephone modular adapter plug. Unfortunately, not all hotels, airports, and other travel facilities are built with data communications in mind. Many hotels have the telephone hard wired into the wall to prevent theft (a big demand in Caracas for slimy used U.S. hotel phones?) and many others have gone to in-house digital PBX systems that won't work with modems. Computer Products Plus, Inc. has developed a **ROAD WARRIOR DELUXE TOOLKIT** that features a modular extension cord, modular splice, modular T connector, a little magnifying glass, knife, screwdriver, and alligator clip-to-modular plug rig. Most notably, they also include a little device called the **CP+ CONNECTION** allowing you to provide the interface to the newer digital systems. With the **CP+CONNECTION**, the rig travels at \$139.95. Without the interface module, it's \$49.95. Nice travel pouch either way. Call (800)274-4277.

For just obtaining an RJ-11 modular socket, all the hardware in this kit totals less than \$20 in any hardware store. If you do need to connect to the newer digital in-house systems many hotels are going to, the **ROAD WARRIOR DELUXE TOOLKIT** looks like the one to have.



## GPO STYLEGUIDE SOFTWARE

The largest printing house in the world is the United States Government. To feed all that printing madness, someone somewhere along the line has to write some of it. If you are called on to do so, you will most likely be required to adhere to the *Government Printing Office Style Manual*, commonly referred to as the **GPO Style Guide**. Almost every government specification for any product in existence makes reference to the **GPO Style Guide** as a requirement. Sageline of Kingston New York has produced a reasonably cheap, facile hypertext software product for IBM compatibles titled **GPOStyle** which includes the full text of the manual along with a table of contents and a 2000 entry index. The program is \$79. Unfortunately, it is **NOT** a terminate-and-stay-resident program. You must exit your word processor, access **GPOStyle**, and return to your word processor to use it. Sageline, POB 2346, Kingston, NY 12401;(914)338-3025.

## UNIVERSAL DATA SYSTEMS V.32 MODEL

Universal Data Systems has introduced a new modem termed the **9600-bps Fastalk V.32/42b**. The unit complies with CCITT recommendations V.32 and V.42bis to provide links of up to 38,400 bps. The company joins Hayes Microcomputer Products and U.S. Robotics in implementing these international recommendations. The new unit is priced at \$1145 and should be ready to ship during the first quarter of 1990. Universal Data Systems, 5000 Bradford Drive, Huntsville, AL 35805; (205)721-8000.

## ANSI GRAPHICS FOR CROSSTALK USERS

It is not mentioned anywhere in the Crosstalk documentation, but owners of the Crosstalk communications program often report difficulties in dealing with the ANSI color graphics common on many electronic bulletin board systems. The solution is to select IBM-PC as the terminal type but to set the screen font to **TERMINAL**.

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## LONG DISTANCE USA

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### MAXI-MICRO TICKERSCREEN - STOCK MARKET BBS

After working for a number of brokerage firms, Max Ule got into the discount brokerage business when the commission schedules were deregulated in May, 1975. He currently operates **MAX ULE & CO., INC.** as a division of Herzog Hein Geduld, Inc., a self-clearing New York brokerage house established in 1926.

Mr. Ule may be eminently qualified to operate a brokerage house. We aren't really qualified to judge on that one way or another. We do know that he has assembled one of the best stock market bulletin board systems in the country.

The **MAXI-MICRO TICKER SCREEN** operates at (212)809-1160 from 5:00 PM to 9:00 AM on market days and 24 hours on weekends. The line serves as an office voice line during the day. A Tickertec online stock quote system assembles market prices during the day and at market close ports them to a database in this bulletin board which operates under the **TBBS Information Manager** software. The result is high, low, and closing prices on over 2000 major securities traded on the NYSE with a very easy to use search function.

The system also provides a closing market summary listing the Dow Jones Industrial Average, NYSE Index, Standard and Poors 500 Stocks, NYSE trading volume, the number of advancing stocks versus declining, the American Stock Exchange Index closing, AMEX volume, and the NASDAQ Index.

Most intriguing, this system offers market research and recommendations provided by **Cyrus J. Lawrence Morgan Grenfell, Inc.**, a respected market research firm. They provide a **STOCK OF THE WEEK** profile along with daily research reports on various stocks likely to be movers. We noted 44 issues of this report covering the past two months. Each report provided in-depth

background information and analysis along with projections of future earnings and buy/sell recommendation. This stuff makes interesting reading whether it ever actually comes to pass or not.

We learned quite a bit about PPG, a paint and glass manufacturer. They've had some rough times profit-wise the last year or so but have a bit of new management and Cyrus J. projects a return on equity of 20% or better for each of the next two years.

DCA, makers of the Crosstalk Communications program, and 3Comm, a local area network vendor, also made these research sheets. It seems DCA has taken a 10% position in 3Comm stock. We also learned Hewlett-Packard owned a 5% stake in 3Comm and things could get a bit interesting.

The Tickerscreen also offers an online account signup for Max Ule & Company. And as a client, you can enter your buy/sell orders online at no additional charge.

Essentially, this little BBS packs more stock market service into a single AST Premium 286 machine than is commonly available on large online utilities such as CompuServe and GENie. Stock quotations, indices, voluminous market research reports, and online order entry are all provided in a fast, easy to use forum by a knowledgeable trader with ties to a brokerage house that does its own clearing. The system is a wee bit plain in presentation, but excellent in execution and information value. Max Ule & Co., 26 Broadway, Suite 200, New York, NY 10004; (800)223-6642 voice.

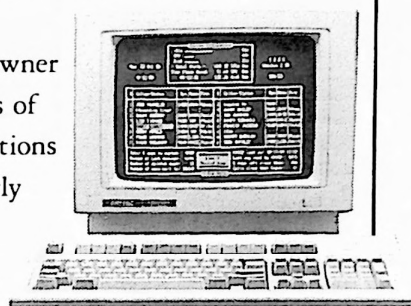
## RADIO ELECTRONICS MAGAZINE BBS

Radio Electronics Magazine has been in print for many years providing small intriguing electronics projects for the hobbyist electronics enthusiast. While technology has changed in the years since tube radio set projects were their main forte, RE has remained faithful in format and faithful to their audience. Projects these days revolve around more modern concepts such as how to build a digital compass, how to intercept cordless telephone calls, and various little devices you can hook up to



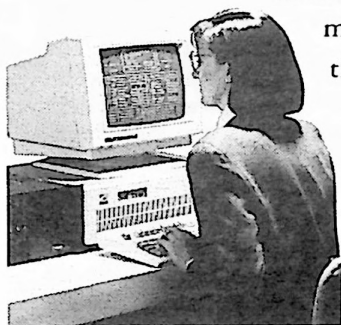
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When you talk to the owner of *tbbs*, you will hear stories of the ease with which applications can be developed. The nearly unlimited power which is still easy to mold and use.



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Reliability may only be mentioned if you ask, because the owner of *tbbs* takes for granted that multiuser communications systems *Should* be this easy to construct and require no special attention to be available at all times.



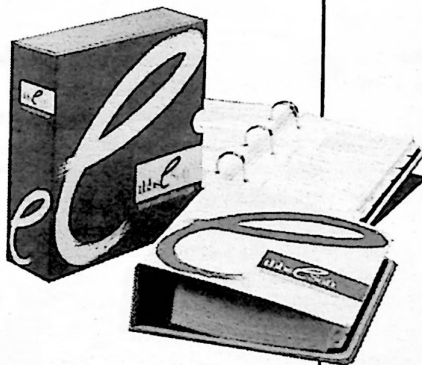
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your PC RS-232 serial port. Still the magazine has managed to avoid the allure of the pop-computer culture and remain faithful to their very technically adept subscribers.

Computer projects are generally of the type where you build one using some bizarre Motorola controller chip, and burning the software into a read-only memory chip to run it. Then you wire it up to your aquarium to regulate temperature and feed the fish each time the wind shifts direction by more than 12 degrees. Projects range from the truly useful to the absolutely bizarre and a comprehensive survey of articles printed over a two year period would probably reveal a distinct bias in favor of the bizarre. No spreadsheet comparisons for these guys. Printer reviews are out of the question.

RE has installed a bulletin board after a fashion at (516)293-2283. It uses some pretty limp BBS software and is definitely a no-frills BBS. You won't see any little ANSI graphic airplanes buzzing around the screen or 3-D menu boxes on this service. The system is named RE-BBS - again, nothing particularly inspired. We're going to guess RE stands for Radio Electronics. And it uses a 1200 bps modem we found so noisy that we must assume someone forgot and left and extension phone off the hook. But somehow, the little board was kind of "homey" as well as homely.

The main contents of the system are messages and files concerning electronics projects provided in the magazine. Plans and software for a digital compass and the source code for a 68705 clock project were currently all the rage. We did find files containing a Motorola Discrete Devices catalog, a loud speaker enclosure analysis program, a CAD program that generates the routing for printed circuit boards, and a file containing modifications you can make to your home radio scanner to allow you to listen into frequencies you're not supposed to scan. A list of all NASA frequencies was provided and a list of all the frequencies used by cordless telephones was available.

We had an odd feeling of nostalgia looking over this little system. Many of us that now grow faint over the latest laser printers, 486 computers, or optical stor-

age devices with each hourly industry announcement began our fascination with technology in the days of crystal radio kits and walkie-talkie projects. Automated garage door openers were hot stuff at the time. That same feeling remains with Radio Electronics. The technology is now digital but from the message traffic we reviewed on this system, the same "what if I wired it to the cat" sense of wonder is still alive.

### JDR MICRODEVICES BBS

JDR Microdevices has been around for sometime as a mail order source for integrated circuits, electronic components, and, within the past few years, microcomputer components. They've recently introduced an excellent BBS at (408)559-0297 that is just packed with features. This TBBS system is a must see.

The system naturally features a database of product offerings. We found them attractive enough to order four NS16550 UART chips as soon as we saw they were available at \$17.95. We also noted that they had a cheap, internal, 2400 bps modem featuring speaker and COM1-COM4 support for \$89. The package includes ProComm software. For \$10 more you can get a Prometheus brand with essentially the same specs.

The catalog is the largest online catalog of components we've seen anywhere. Everything from complete systems to RAM chips and a variety of integrated circuits. Scanners were available as well as printers, modems, and a variety of peripherals. We found the prices genuinely attractive. You can order the product online by supplying a credit card or specifying COD along with your name and delivery address. Very well done.

Unlike many "buy-by-modem" systems, JDR-BBS has a number of other features you may find attractive - including a 1.1 Gigabyte (a billion bytes) of shareware files for download. About 20 categories of files.

The system layout was erratic with no consistent use of keys. Some keys didn't work. Other keys did work but weren't mentioned on the screen. A number of areas were under construc-

tion. And the screen design was a little bit shy of Norman Rockwell or Andy Warhol's best work. There is an ANSI/IBM graphics menu system but the default for IBM is plain ASCII. The system utilities menu allows you to turn on ANSI and IBM graphics. Please feel free to do so.

But the system was loaded. We found some absolutely unique little quiz games for electronics, astronomy, and psychology. These quiz games are unlike anything we've seen online. Wrong answers have consequences. Correct answers are immediately noted.

We took the electronics test. Despite getting most of the answers correct, we did miss a question on TV horizontal scan rate. We were immediately banished to a **BLACKHOLE JAIL** area. This area had message and chat functions and menu selections you could use to muck around in what was apparently a maze. The effect was that of an online adventure game where you had to find "keys" to allow escape. It was not trivial and not easy to decipher. A panic button is provided to escape if you tire of the game - but your name is added to the **LIST OF COWARDS**. And yes, we are listed. But before panic set in, we did note some interesting message traffic among other like lost souls.

This system is interesting, loaded with features, has an immense download library, and features six lines supporting V.32 9600 bps communications. For those without 9600 bps modems, they have them available for \$699. The product database offers excellent values significant enough to garner our own credit card number in fairly short order. Highly recommended. System Operator is Vince Butera, JDR Microdevices, 223 Branham Lane, San Jose, CA 95124; (800)538-5000 voice.

### POW/MIA BBS

We participated in the evacuation of Saigon in the spring of 1975. That was fourteen years ago. But many still believe that Americans are being held in Viet Nam against their will. This past Veteran's Day, November 11, a small group of them started an online service titled **POW NETWORK** operating at (319)386-7697 using PCboard version

14.1D. Chuck Schantag, Mark Reinig, and Mary Howard serve as system operators.

From what we could see, the system is strikingly insignificant in style and execution. Worse, first time callers are allowed to leave a comment or page the system operator but nothing else until they are validated. We chatted with Chuck Schantag about this and he said he has had some real security problems with callers trying to break into the system. Since the board is free to callers and exists to disseminate information about Americans in Asia, we thought this a bit odd. We asked him if there were people who OPPOSED bringing home MIA/POWs and were attacking him for some reason. He didn't think so but he wanted to run a "secure" system anyway. Turns out he was an ex-Marine. Of course. As they say, when the feces hits the oscillating local ventilation device, it always says MAH-REEEEEEEN.

Despite the usual "Corps" style semper fi mentality, this system does provide some interesting information. They have obtained **1579 biographies** of Americans missing in the war using the Freedom of Information Act and posted them online. They average about **3 KB** each with some as large as **18 KB**. It's fascinating if a bit melancholy reading.

It has simply been too many years for me to believe any Americans are being held in captivity as a result of the war. I did know several guys who became enamored of a slower, simpler, less materialistic lifestyle. They married, settled, and got by raising cacao bean or some such. That would likely be difficult for families in the States to accept.

Regardless of the possibility of freeing POW/MIAs, this system does serve as a kind of a memorial to those we never heard from again. In that sense, it provides a bit of a sad reminder of the many lives changed forevermore by a bit of a strange war. A good addition to this system would be the **55,000 names** from the Viet Nam Veteran's Memorial in Washington D.C.

## DEMOCRATIZING PUBLIC INFORMATION

by David Hakala

**US Datalink, (800)527-7930**, represents over **250** specialized information brokers, giving its customers one-call online access to public documents in all fifty states, even records that do not exist in machine-readable form. One connects to **U.S. Datalink (USDL)**, submits requests for information, and calls back the next day to retrieve the results of a search that may span hundreds of data sources. The **\$4.50 to \$55** report fees even cover the cost of manual record searches and scanning paper documents to ASCII files if necessary.

Connection is made via Telenet, but there is no need to worry about mounting clock charges. **USDL** provides each client with a front-end processor program configured to his/her computer system. Four customizable packages are available depending on one's information requirements, sort of like a Chinese menu.

Search requests are formulated offline, allowing leisurely selection of the desired report(s) and accurate entry of search criteria. Log-on, inquiry transmission, report retrieval and log-off are handled by the software at the press of a key. Typical connect time, according to the company, is less than one minute per search request/report, or five to thirty cents worth.

**USDL** customers pay only for what they get, and they get it as easily as ordering a pizza. By contrast, one might fumble through some online jungles for hours at **\$1 to \$4** per minute, download twenty **\$5** records, and find only one is really what you had in mind.

The information warehouses call this phenomenon "faulty search strategy design." They'll obligingly teach you how to design a search via a series of **\$150** seminars, at a Customer Learning Center somewhere in the next time zone. This saves them the trouble of learning how to design a proper database.

The personal data available through **USDL** is mind-boggling, even frightening in some respects. Given your license plate number (say, from a freeway alter-

cation?), we could learn your Social Security number, address and telephone number (including many unlisted or unpublished numbers) for just **\$17.50**. Armed with this information, we could go on to learn your employment and credit history, driving record, criminal convictions, workers' compensation claims, business and assumed names, alimony payments, real property holdings... and a lot more information you may have thought was confidential.

Before you start ringing the alarm about Big Brother and invasion of privacy, consider these questions:

-- What do you really know about your daycare provider?

-- Has your doctor ever lost his license or a malpractice suit?

-- Has that used car you're buying ever been in an accident?

-- While an employer checks your references, who's checking his?

If the answers make you uncomfortable, one of **USDL's** information brokers can make you feel better.

**PC LOCATOR** uses a name, Social Security number, address or phone number to scan over **600 million** public and proprietary records. It can locate your long-lost Army buddy or verify the identity of the latest caller to your BBS. Unpublished or unlisted phone numbers often find their way into databases through mail orders and application forms.

**PC PROFILE** provides links to employment data: credit and criminal histories, driving records, licenses and professional certifications, verification of degrees from **5,000** colleges and trade schools. One of **USDL's** affiliates, for just **\$15**, will even call a job applicant's past employers to verify dates of employment, job title and eligibility for rehire. Many employers don't even do that much of a reference check. They don't have time for telephone tag or written requests.

Many job-hunters sing the "If only I had known" blues shortly after accepting a company at face value. **PC CORPORATE** deals with business records:



# Letter Quality Print from an El Cheapo Printer

Yardley, PA -- Scientists say that human beings use only about five percent of their available brain capacity. Much the same could be said of the typical nine-pin or "nine-wire" dot matrix printer. They're fine for quick drafts and screen dumps, but few produce business correspondence you can be proud of.

Well, if you have an IBM or compatible computer, stand by for a big surprise. You really *can* get quality from an inexpensive nine-pin dot matrix printer so good that you will absolutely not believe your eyes. Crisp character definition, a wide variety of fonts (typesets), and special print features so impressive that the correspondence you produce need never take a backseat again.

And the price? The price may be the best part of all, since the software that makes all this possible is shareware. That means it's widely available, usually for the cost of a disk and postage or several minutes of online time.

It also means that you get a full-blown, commercial-quality package, complete with an on-disk manual ready for printing. But most important of all, it means that you don't have to pay the programmer even a portion of the modest, voluntary registration fee if you don't like the product. It's "try-before-you-buy," software on the honor system.

## Trouble in Paradise

There's just one problem with shareware and its close cousin, public domain (PD) software: There is so much of it that it's nearly impossible to know which programs to get.

CompuServe, GENie, BIX, and others have tons of the stuff for you to download. So do most bulletin board systems (BBS). But how many times have you been online and, intrigued by a file's description, decided to download it -- only to find that it's either trash, or buggy, or not at all what you were looking for? Worst of all, obtaining that clunker just cost you maybe half an hour of connect time or long distance charges.

Mail order firms are generally a less expensive alternative. But have you seen their catalogues? Most offer dozens of programs for each application --

15 spreadsheets, 45 word processors, 10 zillion communications programs, and so on. Yet most give you only a single, sparse sentence of description to go on.

So what do you do? You end up ordering -- and paying the distribution fee for -- several disks in each category. Then you spend hours going through them: printing out the documentation, running the program, feeding it sample data, and taking notes on what you like and dislike about the package compared to the others in the pile.

By the time you're done, you're convinced that "free" or not, shareware is no bargain. You add up all your costs and realize you'd have been better off spending several hundred dollars on a commercial package.

And how do you know whether you can count on the programmer to give you the support you need once you send in the registration fee? You could phone each one individually, but who has time for that?

## The Answer

If only you could commission someone to do the work for you. Well your wish is about to come true, for St. Martin's Press has published Alfred Glossbrenner's *Master Guide to FREE Software for IBMs and Compatible Computers* (530 pp. \$18.95). This is the book longtime Capital PC SIG chairman and ABC News correspondent Brit Hume called "one of the all-time best books" [*Washington Post*].

It's the one about which *New York Times* columnist L. R. Shannon wrote: "If you cannot find at least a couple of pro-

grams that will pay for the price of the book, you haven't read it."

Packed with hands-on tips and tricks -- how to quickly and efficiently tap the free software libraries of all the leading online systems, for example, not to mention BBSs, user groups, and mail order firms -- it's even got a "Background and Basics" tutorial for new and inexperienced PC users.

Written by the author of *The Complete Handbook of Personal Computer Communications* and over a dozen other books, this is the one that doesn't pull any punches -- it tells you exactly which programs to get and why. Including how to get letter-quality output, fonts, and lots of other things from an el cheapo printer.

You'll find copies in all major bookstores and libraries. But as a special offer for *Boardwatch* readers, we'll send you both the book and a disk with the two best letter quality print programs for just \$18.95. (Please specify disk size.)

If you want the disk only, send \$5 for 5.25-inch or \$6 for 3.5-inch media, and ask for PRINTER Disk 2.

The latest Glossbrenner's Choice shareware/PD catalogue and book brochures are available free of charge. Make checks or U.S. dollar money orders payable to FireCrystal Communications. Contact:

FireCrystal Communications  
699 River Road  
Yardley, PA 19067  
(800) 628-7637

Figure 1. Three of more than 20 fonts supplied on Printer Disk 2.

### Courier

ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz  
The quick brown fox jumps over the lazy red dog.

### Helvetica

ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz  
The lazy brown dog bites the quick red fox.

### Hollow

ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz  
When the dog bites. . .

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Steamboat Springs CO 80477  
1 (303) 879-0909

UCC (Uniform Commercial Credit) reports, corporation and DBA records, officer reports, bankruptcies, federal filings, etc. I learned some very interesting things about a former employer through an online glance at his UCC records.

PC AUTO provides nationwide access to motor vehicle, pleasure boat, FAA and drivers' license records. You can trace a vehicle or its driver and learn what one has been doing to the other.

PC AUTO costs \$345 to set up, the others \$385 each. A comprehensive package called PI-COMM goes for \$975. PI-COMM is very popular with the thousands of private investigators who have used USDL for years.

Allegedly "public" records are often just a tax-subsidized research department for corporate marketers, collection agents, private investigators and nosy bureaucrats. These people are paid to dig up government data, have always done so and always will. They're experts at finding out all about you AND at lobbying for continued access to your "private" life. Big Brother can be slowed but he won't be stopped.

Little Brother (that's us) is hard pressed to keep up. Joe and Jane Public don't even know what data is theirs for the asking, nor do they have the time to get it. A driver's license record costs only \$3 -- and a couple of hours at the Department of Motor Vehicles.

USDL is making government records truly the "public's domain" instead of an insider's secret weapon. The setup costs would certainly deter any wacko bent on tracking down a passing driver. But the up-front cost and use charges are well within the means of small businesses, PTA's, neighborhood associations and other tiny special-interest groups that were previously shut out of the information market.

Even individuals with a pressing need to know, such as locating a runaway child, will find USDL less expensive than a private investigator, who will add his markup to the basic service. It may also be more comforting to conduct such a search yourself than to sit powerless while "authorities" do whatever it is they do with limited budgets and

manpower. US Datalink: 671 Bayway Drive, Baytown TX 77520. (800)527-7930.

## NETWORK LINKS BIG BUYERS, SMALL SELLERS

by David Hakala

The Buyers and Sellers Network (BASnet) helps small businesses get a piece of big government and corporate purchasing contracts, and helps large buyers find small, competitive and responsive suppliers. BASnet also offers online support for isolated entrepreneurs, and forums in which special-interest business groups can disseminate information and organize their constituents.

BASnet features databases, electronic mail and bulletin library facilities, all designed "to get dollars flowing between buyers and sellers," according to Tom Godwin, president of Complexity Simplified, Inc., and BASnet's creator. A homebased infopreneur and small business consultant, Godwin has a valuable formula for running an electronic cottage: he shares both the work and the profits with his customers.

Several organizations representing minority/women-owned entrepreneurs maintain profiles of their members on BASnet, reaping a share of the system's profits in exchange for updating their databases and encouraging their members to use BASnet. Government and corporate buyers enter RFQs and open purchase orders, search the databases for qualified contractors, and counsel small firms on doing big-time business.

Members of any participating business organization may subscribe to BASnet for \$156 per year. Nonmembers pay \$356. Groups currently affiliated with BASnet include the American Indian, Asian, Black, Hispanic and Women's chambers, and Minority Enterprises Inc.

BASnet's databases use standard purchasing community codes, but also let users enter and find information the way they think, instead of requiring them to learn a whole new language. A company profile may include SIC codes, Federal Stock Codes and the relatively new NIGP Commodity/Service codes as standard tags. A firm may add

its own distinctive narrative, and buyers can look for "erasers" instead of the NIGP code for "office supplies." Eligibility for minority, disadvantaged and/or small business setaside programs is also indicated.

Searches can specify any set of words or partial words, using the comma and vertical-bar symbol to combine words in AND/OR fashion. "Computer, consultant, Denver|Boulder," for instance, yields computer consultants in either Denver or Boulder.

Buyers' RFQ's include personal and corporate contact information, setaside status (encouraging small businesses to bid), formal codes, free-form text, due dates and other information about solicitations. Eventually, any RFQ soliciting landscaping services will automatically be posted to the electronic mailboxes of all landscapers on BASnet, reducing the need to go searching for opportunities.

But there's more to doing business with the government or large contractors than just knowing what they want to buy. BASnet's libraries and electronic mail facilities help small firms learn the intricacies of government procurement regulations, how to compose a formal bid, qualifying for setaside programs, etc.

Electronic mail distinguishes BASnet from one-way databases and print publications. BASnet has much in common with BBSland. There's a host of old hands willing to help rookies understand what's going on; all the latter need do is ask.

Recent Department of Defense surveys indicate a two-thirds decline in the number of small businesses responding to DoD solicitations, a serious drop attributed directly to the red tape associated with government contracts and the difficulty of obtaining help with all the forms. BASnet offers an ideal online solution to this communication and education problem.

Subscriptions include 30 minutes per day access to BASnet, but the software more than compensates for the brief allowance by making it easy (and mandatory) to compose messages offline and upload them to the system. One can keep a laundry list of form letters on



file, and send copies to selected or pre-arranged lists of users at the touch of a key. Saving messages nonstop for offline reading also saves time.

**BASnet**, like several infoboutiques we've recently covered, requires a custom software package provided with a subscription. Written in C, it uses keyboard or mouse to quickly navigate pulldown menus. It's a shining example and a glaring reproach to most terminal programs.

This communication software communicates with the user as well as the modem. Type "**basnet**" and you receive a list of plain English choices. **REAL** people don't "log on;" they call **BASnet**. They may want to save records or messages, but "opening a capture file" is the furthest thing from their minds.

There are other "hidden" benefits which make **BASnet** easy and inexpensive to use. Selecting protocols, setting parameters and other technicalities are handled without bothering the user. Requiring offline composition of messages may seem inflexible, but long-distance users will be grateful when the phone bill arrives. The quality of communication will no doubt benefit as well, since a message author has the full editing features of his word processors at his disposal -- and no excuse for not using them.

**BASnet** is just getting underway in Colorado, but already it has attracted the support of prime contractors, the DoD, the governor's economic development office, and many small-business groups. Buyers and sellers nationwide are invited to participate in this "frictionless marketplace." Contact Tom Godwin for subscription information.

Complexity Simplified, Inc.: voice (303)777-1121. P. O. Box 10280, Denver CO 80210.

#### ONE PHONE CALL, 60 ONLINE JOB FORUMS

by David Hakala

Career Technologies Corporation offers job-hunters thousands of current job openings and confidential exposure to

hundreds of potential employers. It also gives employers access to over 20,000 fresh resume's every 60 days.

CTC and its Virginia-based affiliate, The Lendman Group, host online employment services for IEEE and 59 other professional societies. Any "technical professional" can upload or mail in his resume', along with a form describing relocation preferences and salary requirements. One's current employer may be barred from retrieving your resume'; in fact, the candidate may pick and choose which responding employers he wants to answer, before revealing his identity.

Anyone can browse the jobs listed on the database, but only members of participating societies can read employers' contact information and respond online. CTC maintains several databases for different categories of candidates. All are accessed by logging on to (508)263-3857 using comm parameters 8-N-1. Depending on your situation, enter one of the following passwords:

**PEER:** Professional Engineering Employment Registry: for currently employed candidates. Current employer may be omitted from your resume', and personal contact information is always omitted.

**NEER:** Non-employed, etc.: name and address are included in your online profile.

**SEER:** Self-employed, etc.: specifically designed for contract opportunities and consultants.

There is also a **GEER**, for graduating engineers. Apparently college kids are not allowed online, but must write for registration forms.

Each database also offers current job listings posted by employers. After reviewing a job listing, an interested candidate can send a resume' via electronic or regular mail directly to an employer.

Individuals pay nothing to be included in these databases. Employers pay anywhere from \$3,950 per quarter for job-posting rights to \$12,000 per year for posting and database search privileges.

According to CTC president Joe Stacey, about 500 large and medium-sized employers currently subscribe to these services. CTC has been in business over seven years, operating under the name JobNet until 1987. IEEE and other professional societies endorse the CTC system for its consistent protection of members' confidentiality and quality jobs. Career Technologies Corp.: 138 Old River Road, Andover MA 01810. Voice: (508)683-0098.

#### THINK-TANK COULD BE MODEMERS' CHAMPION

by David Hakala

The Center for the New West (voice: 303-592-5310) offers modem users a chance to shape the future of telecomputing policy. A nonprofit think tank founded by US West, the Center focuses on economic development in the eighteen western states. Many of the strategies it extolls are just what the Network Nation needs to evolve and flourish:

- cultivate local businesses instead of chasing smokestacks

- let government support free enterprise, not direct it

- adopt a global posture in place of limited regional marketing

- abate urban congestion by moving information instead of people

John S. Niles, president of Global Telematics, is Visiting Director of economic development projects involving telecomputing. He has helped depressed rural communities revitalize their economies by creating worldwide markets for local expertise and products. His ideas, promulgated via the Center, are widely read by state and local governments and business leaders from Minnesota to Hawaii.

Niles and the Center need the input of the telecomputing community to offer policymakers alternatives to huge centrally-planned infoservices. Everyone concerned with the future of telecomputing, as a consumer or infopreneur, needs the help of those who have access to policymakers.

We telecomputers tend to ignore the rest of the world while touting the "limitless potential" of online services only to each other. Most attempts to convert the heathen are vague mutterings like "It's a whole new world! Ya gotta see it to understand it." Face it: if the average sysop could sell the benefits of modeming, he wouldn't run a free BBS. He needs an articulate advocate in the real world.

It is dangerous to leave the modem-education of America to CompuServe, GEnie, Prodigy, et. al. Like CBS, NBC and ABC, the dominant networks just copy each others' pabulum and help advertisers schlep more schlock. If left to the megacorps and RBOCs, the Information Revolution will mean little more than eighty different prices for USA Today and bit-mapped specials from Kmart.

Meanwhile, legislators, bureaucroids and reporters who think downloading involves goose feathers shape laws, policies and social perceptions that affect telecomputing. Often we marvel and rage at the resulting folly. But who is more foolish: those who make rules in ignorance or those of us who ignore their making until it's too late?

The Center for the New West can be a powerful spokesperson for information consumers, and a showcase for truly innovative online applications. It deserves our support. We modemers need its help. It's time to get off the bitstream and into the mainstream.

Center for the New West: 600 World Trade Center, 1625 Broadway, Denver CO 80202. voice: (303)592-5310.

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## SOFTWARE NOTES

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### ENVELOPE ADDRESSING FOR LASER PRINTERS

We recently found a little utility titled ENVLJ Version 7 written by Steven D. Stern and released October 29, 1989. This program doesn't really do very much. But it is small, simple, and what it does do it does marvelously well.

ENVLJ addresses envelopes. It works only on HP Laserjet, Laserjet Plus, and Laserjet Series II printers or compatibles. Since the number of laser printers based on the Canon engine is beginning to look like a zip code anyway, this is becoming less of a restriction for a software program. Since many word processors now include fairly exotic macros to address envelopes, it might appear that there is little use for such a utility. But generally, learning how to use such macros is tedious and if you use a variety of word processors, your favorite envelope addressing macro is on a different one anyway.

ENVLJ is an independent program you can call from anywhere, quickly enter an address, jam an envelope into the printer and instantly get it out the other end - attractively addressed and complete with the POSTNET bar code printed across the bottom of the envelope.

This little utility not only earned a bit of hard disk real estate, it quickly found its way into a path directory so we can call it from anywhere.

ENVLJ comes in the file ENVLJ724.ZIP - about 84 KB in size. You must use the PKUNZIP utility by Phil Katz to uncompress the program. Once all the shareware trivia files are sent to RAM heaven, you are left with ENVLJ.EXE and ENVLJ.DAT. The .DAT file is actually a little database where you can store up to 128 commonly used addresses.

We quickly renamed ENVLJ.EXE to ENV.EXE using the DOS rename command. From anywhere in the system, we can simply enter ENV at the command line and call up the program - which displays an envelope on screen believably enough. You fill in a return address and a mailing address by simply typing them in. There are two font selections - COURIER and SOFT. Use SOFT. It's prettier.

After entering the address, slide an envelope face up into the manual feed brace on the top of the paper tray. Older Laserjets have a manual feed slot in the back. Press ESC and a tiny menu bar appears at the top of the screen. Yep. You want the PRINT option. The printer sucks in the envelope at the bot-

tom and spits it out at the top and ladies and gentlemen, this way to the EGRESS. That is the entire show.

The program does have a few options that we explored hastily and poorly. It will allow use of up to 32 different types of envelopes we understand. Without any further activity on your part beyond including a zip code as the last item on the bottom line of the mailing address, it also prints the POSTNET bar code along the bottom of the envelope. This speeds up your mail processing a bit, makes your postman happy, and if you do a lot of these, you can get a reduced first-class postage rate.

The program requires NO documentation to use at all. It prints the envelopes quickly and the resulting envelope looks very professional. It has few options and those provided are remarkably easy to ignore. We would not want to do a 100,000 piece direct mail campaign with this program. But for ripping out a quick letter, it just can't be beat by any other software program around. The requested fee is \$25 - probably a bit pricey considering what the program does. But we like it. Steven Stern, Crown Software Corporation, 900 N. Michigan Ave., Chicago, IL 60611; (312)915-1131.

### ELSEWARE: FREE REMOTE CONTROL

by David Hakala

Software that allows you to run a PC by remote control via modem has become quite popular. Kevin Kiley, who must support programs he's written wherever they are being used, wasn't happy with the memory requirements, prices and time-slicing abilities of any commercial programs like Carbon Copy. So he wrote his own remote control program and has released it to the public domain.

ELSEWARE includes two TSR ("Pop-up") programs, one for the host (customer's) computer and one used by the remote system (Kiley) to call the host for a diagnostic or training session. Both programs are tiny: 8 Kb for the host and 16 Kb for the remote. This leaves plenty of RAM for the applications you can run during a session.

When installed, the host software quietly waits in the wings for a call from the remote system. It does not interfere with anything you may be doing in the foreground, including running another communications program. However, some comm programs, notably Procomm, may alter the com port settings in ways that will give ELSEWARE's host module fits. Kiley sells a terminal program guaranteed to work with ELSEWARE.

The remote module is not a terminal program. One can use Procomm or another program to dial up the host and establish a connection. Then you must be able to exit the comm program without losing the connection. This trick is commonly called "drop to DOS," "shell to DOS," "jump to DOS," etc. Most comm programs allow it.

People who speak DOS and the Hayes AT command set in their sleep can also use the **MODE** command to set the modem and **COPY CON COM:1** to connect to the host without any terminal program. Once in DOS, load the ELSEWARE remote module, giving it certain communication parameters that are easily set up in a batch file.

One of these user-controlled settings is "poll timing," the interval ELSEWARE waits before requesting another video update from the host computer. This variable is another reason Kiley wrote ELSEWARE. He couldn't find a commercial program that gave him control over this "time-sharing" between host and remote. Some programs running on the host may bog down or crash if poll-timing is too short or conflicts with interrupts the host uses.

Once loaded, the remote module is activated by holding down the ALT key and pressing the period key. You are now effectively "in" the host system's DOS environment, including whatever application program is running there. It's as if you sat down at the host's keyboard.

Some things are a bit different. Both users have equal control of the keyboard; whatever is typed at the remote console affects the host, and the host user can key in commands too. Both users can see what the other is doing.

Some differences affect only the remote user. These effects are most noticeable with slower modems and host CPUs. Keystrokes entered from the remote will not immediately appear on screen due to video update and transmission delays. DOS commands such as **TYPE** and **DIR** will scroll in fits and starts. Commands which display "frames" of information will appear normally after a slight delay. ELSEWARE waits until a video update is completely received before updating the remote's display; this avoids the "washover" effect of other remote access programs.

If the host system has enough modems and phone lines, the remote user can load a compatible terminal program and call a third system. This suggests some byzantine but intriguing possibilities:

Say you are helping a client solve a problem via ELSEWARE. You see that he could use a certain device driver or utility, and you know where to find it. Just call the right BBS from his system -- on his dime! -- download the utility needed and install it for him.

A similar procedure could set up a three-way conference call, or even more ways if you and the host call a multiline chat system.

If you are on the road or working from home, you could dial up your office computer via ELSEWARE and call a third system. Any use fees would be billed to your office, helping to keep records straight. Anything downloaded to the office machine this way could be transferred to you using another utility Kiley sells.

You could let clients to use your account on almost any online service. Obviously, you'd want to be careful in passing out such privileges, but there is profit in providing such "bridge" services.

ELSEWARE is not copyrighted, though Kiley gives some good reasons to register the program: a modest \$20 fee (Carbon Copy costs ten times more), a printed bound manual, free updates and telephone support. But the best reason to send your \$20 is -- it's well worth it!

ELSEWARE, its documentation and forms for registering or ordering complementary programs from Kiley may be downloaded by subscribers to Boardwatch Online Information System: 303-973-4222. You may also obtain it directly from Kevin Kiley at the address below.

Kevin Kiley, Interlink Technologies:  
P.O. BOX 49646, Sarasota FL 34230-6646

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## GLOSSBRENNER'S CHOICE

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### These are a Few of My Favorite Things

As you read this, the powder-white snow that enrobes the landscape with such splendor will have turned to ugly black slush, and the Christmas tree that twinkles in your living room will probably lie at the curbside, stripped of its glory, awaiting the tender hands of the trashman. Unless you're like me and somehow never manage to take it down till Easter.

But right now, it's almost Christmas and my head is filled with the sounds of that stupid song, "My Favorite Things" ("Whiskers on raindrops and kittens on windows," or some such.) So perhaps it's inevitable that I've been thinking about my favorite public domain/shareware things.

One title came instantly to mind: Mark Hersey's **FANSI- CONSOLE** (Fast ANSI Console). Though widely available from all shareware sources, this gem has never gotten the kind of press attention it deserves. So it's entirely possible that you've never heard of it. But once you try **FANSI-CONSOLE**, like me, you will absolutely refuse to use a PC without it.

I'm so addicted to **FANSI** that whether I'm going to a client's place of business or a friend's home, I bring my own boot disk along with me. It raises a few eyebrows. But as I freeze the screen at will and scroll back through previously dis-



played material, the eyebrows rise still further. "How'd you do \*that\*?" they'll say.

I'll show them, of course. And they say, "Geeze, could you set that up for me? Now I see why you wanted to bring along your own disk."

### **FANSI: The FAST ANSI Console Driver**

There are so many things to say about Mark Hersey's shareware **FANSI-CONSOLE** ("fancy console") that it is difficult to know where to begin. The program has scores of features. Indeed, one of its advantages is that it incorporates within a single framework the functions of dozens of small utility programs. But the one feature I think you'll find most useful is **FANSI**'s ability to freeze the display to let you scroll back through screens that have already been displayed.

#### **One-button Scroll Recall**

For example, suppose you have a sub-directory containing 100 or 200 files. You key in **DIR** and watch as the filenames scroll by. Midway through the list you glimpse a file you don't recognize. But by the time the fact registers in your mind, the filename has scrolled off the screen. Or suppose you're online with MCI, CompuServe, or GENie. The electronic mail messages people have sent you appear and scroll off into space. Only then do you realize that you've forgotten to turn on your communications program's capture buffer.

In either case, with **FANSI** the watchword is, "Hey, no problem." You merely hit your **LOCK** key and the listing or the screen is instantly put on hold. A reverse video bar appears at the top of the screen indicating that **FANSI** has been invoked. Then you use your arrow and age Up keys to scroll back through the information that has already been displayed. You can print the information a screen at a time with your **SCREEN** key, or using another **FANSI** feature you can \*clip it out and write it to a file\*. When you've finished, just hit **LOCK** again to release the display, and things will continue right where you left off.

The keystrokes, frustration, and wasted time these two **FANSI** features alone can save you in the course of a year make the program invaluable. There are many other features as well. To understand them, you must have a better idea of what **FANSI** is and how it works its magic. Not coincidentally, the same general explanation applies to the **ANSI.SYS** driver that you received as part of your DOS package when you purchased your PC.

#### **The Adaptor-plug Approach**

As many readers know, PCs use an "adaptor plug" approach to meshing the hardware with the operating system with the applications software. The applications program plugs into the operating system. And the operating system plugs into the BIOS (Basic Input Output System) -- which is the only one of these three components that knows -- or needs to know -- how the specific hardware you're using works.

Thus, applications program need only say, "Save this file to disk." And DOS will salute smartly and pass the request on to the BIOS. Broadly speaking, it is the BIOS that knows where the disk drives are located, the type of drive, and how to do the dirty work of getting the file recorded. The applications program couldn't care less. Which is why all applications programs written for DOS will run on nearly any DOS machine, regardless of its hardware configuration.

#### **Replacing the BIOS**

The downside of this approach is the tradeoff between widespread compatibility and performance. All of that translating and buck passing from applications program to DOS to BIOS takes time. The time is most noticeable in screen handling operations, where the characters don't appear as quickly as they otherwise might. The fastest, most machine-specific way for a program to handle a PC screen is to directly manipulate the video hardware, bypassing the operating system and the BIOS completely. The slowest, most compatible way is tell DOS to do it or to get it done. In between is the option of bypassing DOS and speaking to the BIOS. This

offers good cross-machine compatibility and better speed than going through DOS.

It is this third approach that Mark Hersey has followed with **FANSI-CONSOLE**. But he has taken it to a higher level. Instead of merely speaking to the BIOS, which Hersey feels is still too slow, **FANSI** completely replaces the screen and keyboard portions of the BIOS. Thus, any program that has been written to talk to either DOS or directly the the BIOS will perform better with **FANSI** installed. Programs written to directly address the video hardware will not be affected.

**FANSI** also replaces the **ANSI.SYS** device driver supplied with all versions of DOS from 2.x on. Because the DOS manuals have never done a very good job of explaining **ANSI.SYS**, much confusion has grown up around what it is and what it does. Fortunately, there is a simple answer.

**ANSI.SYS** is a piece of software that adds a series of additional capabilities to DOS's standard screen and keyboard handling functions. If you want DOS to have these capabilities, all you have to do is put the line **DEVICE=ANSI.SYS** in your **CONFIG.SYS** file. When the PC boots up, it always looks for **CONFIG.SYS**. If it finds the above line in that file, the **ANSI.SYS** software will be loaded and become a part of DOS. **FANSI** is loaded the same way, as we'll see in a moment.

All "device drivers" work this way. If you think about it, it is really a pretty sensible system. Just as no applications software producer can be expected to create a different version of a program for every machine, Microsoft or any other operating system producer can't be expected to create operating system software capable of handling every conceivable peripheral device. And you wouldn't want them to either, since such an operating system would gobble up ever more memory.

By designing the necessary "hooks" into its software, however, a company like Microsoft makes it possible for the manufacturer of, say, a CD-ROM laser reader, barcode reader, FAX board, or specialized video board to add an exten-

sion to the operating system by supplying you with the necessary device driver software.

### Being There: "I like to watch"

Once loaded, **ANSI.SYS** or **FCONSOLE.DEV** sit in memory watching the keyboard and the screen -- the two components that make up the "console" in computer-speak. They are looking for a command intended for them, a command drawn from a specific list created by the American National Standards Institute (ANSI).

Years ago this organization produced a set of standard commands that mainframe and minicomputers could issue to better control the screen displays of their attached terminals. A terminal, remember, is little more than a keyboard and a screen connected to a mainframe by a cable or telephone wire. Most have few, if any, "brains" at all. Before terminals, there were Teletype or "TTY" printers. And before the ANSI command set was adopted most "glass TTY" terminals were limited to printer-like, one-line-at-a-time displays.

The ANSI command set (currently, **ANSI X3.64--1979**) as implemented with the **DEC VT-100** series and other terminals, made it possible for a mainframe or a mini to clear a remote terminal's screen, write text from top to bottom, and send the cursor back to the top or some place else on the screen to request input from the user. Reverse video, intense highlighting, blinking characters or words, and separately scrolling window-like sections of the screen could also be used. There were, and are, many other features as well.

It is this set of commands and capabilities that **ANSI.SYS** or **FCONSOLE.DEV** respond to when loaded. (FANSI, however, offers even more power and more commands than the ANSI implementation.) It is worth pointing out that by adopting a standard set of commands, Microsoft and IBM have made it possible for programmers to have a high degree of control over the screen without dealing directly with the video hardware.

### Escape from the Ordinary

According to the standard, virtually all such commands begin with an ASCII decimal 27, the "escape" character, followed by a left square bracket ([, an ASCII decimal 91). That's the sequence that **ANSI.SYS** or **FCONSOLE.DEV** are waiting to see, for they know that the letters, numbers, or text strings in quotes that immediately follow it represent commands for them to swing into action.

This leaves two main questions regarding extended control of your screen: What \*are\* the correct commands? and How do I send them to **ANSI/FCONSOLE**? The answers to both can be found in files on the two FANSI disks. (The DOS manual gives you a hint when describing the **PROMPT** command, but it refers you to the *IBM DOS Technical Reference Manual* for a complete list of **ANSI.SYS** control codes.) Mark HERSHEY has included all manner of programs to make it easy to send the proper codes or to otherwise configure your system. As you will see when you remove it from its archive, the "abbreviated" on-disk documentation is over 300K long. The printed manual provided when you pay the registration fee is even more impressive.

### Send it a Message

FANSI is so powerful and has so many features that it can be difficult to know where to begin. The most important thing to bear in mind is that there are two ways to tell FANSI how to configure your system. Some features can be specified only through switch settings on the **DEVICE=FCONSOLE.DEV** line as discussed above. Others are specified by sending or typing escape sequences to the console.

The first thing to do is to print out the manual. You're not going to have to read it from cover to cover, but you will want it for reference. Second, key in:

**FANSISET filename.bat SEND**

This will activate **FANSISET.EXE** (supplied) and take you to a series of menus offering you the options of setting various FANSI features. Here's where you will want to refer to the man-

ual. If you want FANSI to speed up your keyboard, for example, you will discover that you can use the **KEYRATE** setting on the **FANSISET** keyboard menu. The IBM/PC/XT default is 10 (internal timer ticks), a fact that has led some software houses to offer commercial programs whose sole purpose is to speed up or otherwise give you control over this feature. A setting of 40 for this feature, however, will put just about the right amount of pep into your cursor.

Make your selection(s) and then follow the instructions for leaving the program. **FANSISET** will then create a batch file using whatever you have chosen as your "filename.bat" in the command above. This file will contain all of the necessary escape sequences and codes to set things up the way you want them. Each sequence will be preceded by **SEND**, to call the supplied **SEND.EXE** program responsible for transmitting them to the system. Naturally, you can incorporate these **SEND** sequences in your **AUTOEXEC.BAT** file (use your word processor to insert the batch file **FANSISET** has created) so everything will happen automatically each time you boot up.

Finally, it is important to be aware of the terms **SET** and **RESET**. In computer talk they do not necessarily mean "on" and "off." Instead they refer to two different states. The FANSI manual uses these terms frequently, but if you keep the computer talk definition in mind, you will have no trouble understanding **SET** and **RESET**.

**FANSI version 2.1**, the shareware version current at this writing, supports the PC/XT/AT line of IBMs and compatibles. It requires 32K of memory (4K when used with the EGA) and DOS 2.x or later. It does not support the PCjr, DEC Rainbow, Sanyo 550, Tandy 2000 (the 1000 and 3000 \*are\* supported), Tava PC, TI PC, Wang PC, or Zenith 100 (the 150 and 200 series \*are\* supported). And while it can be used on the PS/2 line, full compatibility is assured only in Version 3.0, which is \*not\* shareware.



## FANSI Features

I know of at least two commercial programs that offer just the scroll and recall feature discussed earlier. And they sell for either \$50 or \$70. FANSI does scroll and recall with one hand tied behind its back, and this feature only scratches its surface. Among other things, for example, FANSI can:

- Automatically blank one or two screens (to prevent burn-in) after the number of minutes of inactivity you specify.
- Expand the type-ahead keyboard buffer to 255 characters.
- Make the Caps Lock key like that of a regular typewriter so it unlocks when you hit a SHIFT key.
- Completely customize your keyboard, whether you want to alter the meaning of one key, swap two keys, or use the Dvorak keyboard re-assignment program (included).
- Make DOS's "bell" (beep tone) as long or as short as you like.
- Generate audible key clicks. (Good for PC clones whose keyboards may not click themselves.)
- Support 43-line displays (EGA and EGD).
- o Speed up your keyboard by controlling the repeat rate. (Can make a cursor zip across the screen, whether you're in DOS or using a program.)

There are other capabilities as well. Most features can be set by either adding a slash command to the FCONSOLE.DEV line in your CONFIG.SYS file or by keying a command on the fly, after you have already booted your system.

## The Recipe for One-Button Pause and Scroll Recall

Now, if you want to implement the screen-freeze/scroll-recall feature immediately -- without reading the manual -- here's what to do. First, see if you already have a file called CONFIG.SYS on your boot disk or in the root directory of drive C:. If you do, rename it to TEMPFIG.SYS or some other name. Second, make sure that the file FCONSOLE.DEV is on your system disk or in your root directory. Next key in COPY CON:CONFIG.SYS and hit ENTER. The cursor will be at the left, but there will be no DOS prompt next to it. Now key in DEVICE=FCONSOLE.DEV /L=1 and hit ENTER. Finish up by hitting your F6 key to end the file with a Control-Z. Now re-boot your system.

As the system starts up, a one-line banner will appear at the top of the screen announcing the fact that FANSI is being loaded. From now on, each time you hit your LOCK key, whatever the system is doing at the time will be instantly be put on hold and a FANSI bar will appear at the top of the screen. Use your cursor, paging, Home, and keys to scroll backwards and forwards through the display. When you want to resume where you left off, just hit LOCK again. Simple, no? And absolutely invaluable!

If you like the way it works and want to make it a permanent part of your boot process, simply add the above line to TEMPFIG.SYS and rename the file to CONFIG.SYS.

FANSI-CONSOLE (v. 2.0) is shareware. The registration fee of \$75 brings you a copy of the new Version 3.0 (a commercial product), a professionally printed 250-page user manual, and access to telephone support. For an additional \$29.95 (a total of \$104.95), you get a 250-page technical reference manual as well. (Those who have previously registered FANSI can upgrade to Version 3.0 for \$39.95 or \$59.95, depending on whether you want both manuals or not.)

Shipping and handling is extra (minimum charge: \$4; contact company for details). Quantity discounts and site li-

cences, available. Michigan residents, please add sales tax. Visa, MasterCard, and American Express, accepted. For more information and a free brochure describing FANSI's many features, contact: Hersey Micro Consulting, Inc., P. O. Box 8276, Ann Arbor, MI 48107; phone: (313) 994-3259 (voice); (313)994-3966 (data)..

## When the Dog Bites, When the Bee Stings

As I said, FANSI is widely available. But if you can't conveniently find it, I can send them to you for a small charge to cover media, shipping, and handling. Send \$5 for 5.25-inch format, \$6 for 3.5-inch. You can reach me at: Alfred Glossbrenner/FireCrystal Communications/699 River Road/Yardley, PA 19067. Phone:(800)628-7637.

[Alfred Glossbrenner is the author of Alfred Glossbrenner's Master Guide to Free Software for IBMs and Compatibles and many other books. He can be reached on CompuServe at 70065,745 and on MCI Mail at AGLOSSBRENNER. -- Editor]

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## PRODUCT SUPPORT BBS - WHY THEY WORK

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by Jack Rickard

A growing element of our national list of electronic bulletin boards and online information services are essentially product support services for companies such as Ashton-Tate, Intel, Xywrite, Mustang Software, eSoft, Brown Bag Software, Buttonware, Hayes, U.S. Robotics, and so forth. We not only note this trend, but expect it to accelerate rapidly and perhaps explosively during the coming year.

What's behind the growth of these support systems? Well essentially, they have the potential for becoming virtually a cash cow for the organization that operates them - albeit in a somewhat roundabout way.



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Every company that develops a product does it with one primary goal in mind - to sell lots of them. This desire to sell is actually motivated by the cash flow such activity engenders. But each sale has more to do with people and problems than it does with product and payment. And generally speaking, once the product is delivered and payment is received, the people, and often at least a part of their problem remain.

If the hopes and dreams of the founders of the company are realized, lots of product is sold, and the number of people/problems multiplies in direct proportion. How a company deals with these people/problems is a good measure of what kind of company they are. And performance in this area cannot be ignored because it has an almost direct effect on future sales, both to those existing customers and prospective future customers. The after-sale support function is important for all products and crucial for products of a technical nature. Most people don't have much problem in dealing with rubber bands or soybeans, but printers and scanners are another matter. Likewise software.

But the support function is expensive and often difficult to manage. If you have people on-staff that really understand the product, it is probably because they are busy designing it or perhaps selling it. They don't have time to answer the telephone to answer support questions. And if they did, they certainly don't have time to answer it 100,000 times. So people are hired and trained and telephone lines installed. Matching that investment to the number of calls likely to be received at any one moment in time is not a science, it's a ridiculous guess based on what happened yesterday afternoon that brought the crises to the attention of those high enough up in the organization to order telephones and hire people. And each person can handle one caller at a time. Until problem A is solved, the tech support worker can't really take the call from problem B.

So the number of happy customers receiving a busy signal escalates. And the number of happy customers spending six to ten minutes on hold escalates. And now the customers aren't so happy. And they are six times more likely to relate bad news to their friends and as-

sociates than they are to report satisfaction. So toll-free 800 lines are installed (at least those on hold for ten minutes don't have to pay the telephone bill). And costs rise phenomenally. "What do you mean we got a \$65,000 telephone bill - why didn't we just buy our own phone company?"

It's a tough puzzle to work out. And the only time you have to is if you are successful in selling your product. If only it could be automated as easily as accounting or mailing programs. Well it can - partially.

Product support actually works out to be a bit of a funny game. Talk to any technical support person in any field and a very common line of complaint can be heard. Two main themes immediately come to the fore. "It was in the manual. If they had just read the manual they wouldn't have had to call." This appears legitimate on the face of it. There is one little problem. The tech failed to mention that it was on page 656 of the manual. Oh, and there are six manuals. And no, they weren't quite up to speed when shipped but we were already over budget on the documentation and the product HAD to ship.

The other thing any tech support person can tell you is that over 90% of the calls received concern the same top ten questions. If one of your 35,000 customers has a problem with a certain product feature - standby. There is a good chance there will be a second one. Perhaps a third. Or perhaps 32,000 of them. Oddly, particularly in software, you might find 37,000 of the 35,000 you sold to have the same question (a strange world but the one we live in).

An electronic bulletin board system offers a number of advantages that can address this situation - and a couple of drawbacks that keep it from wiping the problem out completely.

The first advantage is that a BBS is a time machine. A 1000 callers can contact the system and leave their question. You can finish what you're doing during the day and deal with the questions at night. A 24-hour response to questions on a BBS is generally considered good support. The caller doesn't have to fight busy signals, and he is never put on hold. He can gain some immediate

information about the product and receive a fairly customized response to a peculiar problem within a day. The store and forward nature of electronic mail is inherently more efficient than the communication on demand nature of voice telephone.

Secondly, if 90% of your support calls cover ten top questions, a bulletin board system can act much like an interactive publication that is frugally cheap to revise. Put the top ten questions online. Let the callers dial in and pick their particular problem from the list. In a cost effective number of cases, they dial in, find the problem they are having listed, read the response, and become well by doing so. They've received excellent support. And once this file is posted online, it costs no more in labor to put it up for one caller or 175,000. Tech support doesn't have to answer the same question 175,000 times and the computer doesn't mind doing it at all. Computers love to answer the same question over and over.

Christine Madsen of Xyquest Corporation has handled this about as well as anyone we've seen. On their product support board for the XyWrite word processor, Christine compiled a list of the top 130 most-asked questions continuously handled by the technical support department and posted them and the responses online. They also included a series of "application notes" and printer drivers they had been mailing out to owners of XyWrite on request. They still do that, but the customers are coming to prefer dialing the BBS and just downloading what they want NOW rather than waiting ten days to get them in the mail. Imagine that. Happier customers. And technical support costs? Ms. Madsen claims the company has cut their technical support costs by HALF.

The board began by charging a \$50 fee to customers to make sure it "paid for itself." The fee went to \$25. They are now in the process of eliminating it altogether. The BBS is saving them enough money on technical support costs that it takes on all the classic aspects of a revenue generator.

Aside from taking the load off of technical support, a support BBS can offer a number of more subtle advantages.

Customer feedback springs to mind. Recording and tallying customer suggestions for improvement, complaints, and problem areas can be so expensive that most small companies don't bother. Sort of a vague sense of what is happening may be gleaned if management stays close to the phone, but a true tally is rare. BBS inherently record everything coming in and they do so in a form that is electronically manipulatable. Comments can be categorized and filed, assembled, shuffled, reordered, and formatted into summary reports. "We had 47 suggestions in a two week period ALL concerning the height of the Framestat Control Panel." These reports can then be routed to sales (play down the location of the Framestat Control Panel) and design (in the next model, could you rock apes look at lowering the location of the FCP to something in the range of human).

A product support board can also be used moderately in making announcements. Most systems post a copy of all company press releases. And note that the personal computer industry is kinder to some groups than others. Journalists have perhaps gained more than most from word processing and online services. Almost universally armed with laptops and modems these days, the ability to dial in and check the latest news from Flavis Waven Products Inc. by modem can let them write up a last minute article needed at deadline in pretty good fashion.

One of the drawbacks on bulletin boards is that some customers have it better than others. About a third of personal computer owners have modems at this point. So not all of your current 50,000 calls per year can be picked up by the product support BBS. On the other hand, if you are selling a \$20,000 turn-key system to design toilet bowls, throwing in a \$109 2400 bps modem and a little terminal program already loaded with your number can be a pretty cunning ploy. Having troubles with the Design-A-Bowl system? Press F1 to phone home.

Does this example sound far-fetched? Check page 13 of our December issue for details of a company that sells a turn-key Monument and Tombstone Design System. His Wildcat BBS system is becoming THE place to get de-

signs for praying hands, roses, and other ornamental design elements for headstones. And many would probably look lovely on a toilet bowl as well. He includes the modem with his package.

What about actual online sales? It is a bit beyond belief that someone will stumble onto a BBS, see an ad for an \$11,000 microcomputer system on the screen and say "What the hell, I think I'll type in a Master Card number and see what that puppy looks like." But if you've already sold someone an \$11,000 system, and he needs to order a \$135 accessory, add-on, or upgrade kit, you can substantially increase your profitability on those items and HIS convenience in ordering it by providing an online database of such items with current prices and an order questionnaire to accept shipping info, item description, and a credit card or company account number.

Arrayed against the product support costs many firms encounter, and too rarely or too late plan for as they grow, even the \$15,000 to \$20,000 ticket for a fairly large 16 or 32-line support system becomes thoroughly trivial. With those economics behind the product support BBS concept, the future growth in the

number of these systems is more dependent on how quickly companies "get the word" and come to an understanding of what can be done with an online system than any other factor we can see. And you may expect a progression from the high-technology situations that have the most to gain today to progressively more mundane applications in the future.

And nothing is too bizarre to believe. A farm implement support BBS? America's farmers are automating more quickly than almost any other group. And most of them are monitoring crop futures trading online right now. McDonald's Hamburger stands are the largest current customer in the country for ISDN and network services. You may well expect in future future sales presentations to hear the question "Do you all provide online technical support?"

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# BOARDWATCH MAGAZINE

NATIONAL LIST OF ELECTRONIC BULLETIN BOARD SYSTEMS AND ON-LINE INFORMATION SERVICES - JANUARY 1990

SERVICE	PHONE	DESCRIPTION	SPONSOR/SYSOP	LOCATION
ADA Information Clearinghouse	(202)694-0215	Information on ADA Programming Language/Military Specs	Department of Defense	Washington, D.C.
ANARC BBS	(913)345-1978	World Radio/TV Handbook - Short Wave Freq Lists/Scheds.	Assoc. of North American Radio Clubs	KS
Applied Modeling Research RBBS	(919)541-1325	Environmental Protection Agency Atmospheric Models	William Peterson/EPA	Hurdle Mills, NC
Ashton-Tate Technical Support	(213)538-6196	dBase and Multimate Software Support System.	Ashton-Tate Corporation	Torrance, CA
AST Technical Services BBS	(714)852-1872	Superb support system for AST Computer Products	AST Research Inc.	Irvine, CA
AT&T Support BBS	(201)769-6397	Support for PC 6300 and Other AT&T PC Models	American Telephone/Telegraph PC Division	Plainfield, NJ
Audiophile Network	(818)988-0452	High-end Audio Components, Music, Video Reviews	Guy Hickey/Quatre Speakers	Van Nuys, CA
Baud Town	(818)893-0340	Relaxed, Friendly Social BBS- USA Today/Newsbytes/Boardwatch	Linda Saenz/Fred Gernand	Granada Hills, CA
BBS Press Service	(913)478-9239	Home of INFOMAT Online Weekly PC News Magazine	Alan Bechtold/BBS Press Service	Topeka, KS
BellSouth's TUG Gateway	(404)594-3964	Transix Universal Gateway - Atlanta Journal-Constitution	BellSouth	Atlanta, GA
Best Friends BBS	(714)832-5902	DLX Multiline Chat/Match Social/Sexual	Ann and Joe Wiseman	Fountain Valley, CA
Big Peach BBS	(404)446-6650	Home of Automenu and Treeview Software	Marshall Magee/Magee Enterprises	Norcross, GA
Big Sky Telegraph	(406)683-7680	Educational Plans/Services to Rural Montana Schools	Montanna Rural Education Network	Dillon, MT
Boston Clnet	(617)439-5699	City of Boston Information Service - Advertising Supported	Advanced Videotext Systems	Boston, MA
Brown Bag Software BBS	(408)371-7654	Power Menu/ PC Outline Software Support	Brown Bag Software	Campbell, CA
ButtonWare BBS	(206)454-2629	PC-File dB / PC-Calc / PC-Type Software Support	Jim Button/ButtonWare	Bellevue, WA
C.A.R.L. Library Service	(303)830-1165	Citations to 2 Million Texts in Colorado Library System FREE	Colorado Alliance of Research Libraries	Denver, CO
Canada Remote Systems	(416)232-0442	Probably Canada's largest BBS/Online Information Service	Jud Newell	Toronto, Ontario
CalHouse BBS 206/2901	(805)395-0650	Multiline Support System for Wildcat BBS Software	Mustang Software	Bakersfield, CA
Cathouse II SuperSystem	(513)528-0505	TV Satellite Dish Info - Videocipher Descrambler Info	Seed City Engineering	Cincinnati, OH
Census Bureau Office Automation	(301)763-4576	Microcomputers and Office Automation	US Dept. of Commerce/Nevis Frankel	Suitland, MD
Census Bureau Personnel Division	(301)763-4574	Employment Opportunities Within the Census Bureau	US Dept. of Commerce/Nevis Frankel	Suitland, MD
Channel 1	(617)354-5776	Twenty-line New England PCBoard System	Brian Miller/Tess Heder	Cambridge, MA
Chicago SysLink	(312)622-4442	TRS 80 Support - Adult Chatline Function	George Matvaszek	Chicago, IL
Classi Computer Fieds	(317)359-5199	Online System for Classified Advertisements	Steve Edsall/Trader Newspaper	Indianapolis, IN
Clean Air BBS	(408)298-4277	Environmental Health/Cigarette Smoking Topics	American Lung Association/ Sheila Blash	San Jose, CA
Cleveland Freenet	(216)368-3888	Cleveland City Information/Ohio Governor's Office Online	Case Western University/AT&T/Ohio Bell	Cleveland, OH
COCONET	(619)456-0815	San Diego Movies/Plays/Theatres Online - Requires Software	Brian and Patricia Dear	La Jolla, CA
Computer Business Services	(714)396-0014	Computer Columnist John C. Dvorak's office BBS	John C. Dvorak and Nick Anis Jr.	Diamond Bar, CA
Computing Canada Online	(416)497-5263	Adjunct to Excellent Canadian PC Newspaper	Computing Canada Newspaper	Willowdale, Ontario
Crosstalk Communications BBS	(404)641-1803	Product Support for Crosstalk for Windows/MK4/XVI	Digital Communications Associates	Roswell, GA
CTC IEEE Employment Database	(508)263-3857	Online Database of 20,000 Resumes for Engineering	Career Technologies Corporation	Andover, MA
Dante Project BBS	(603)643-6310	Commentary/Research on Dante's Divinia Comedia	Dartmouth College	Hanover, NH
DataLink RBBS System	(214)394-7438	Weather Satellite Imaging, NOAA Satellite Tracking	Dallas Remote Imaging Group/Jeff Wallach	Carrollton, TX
Economic Bulletin Board	(202)377-0433	Economic Statistics/GNP/GPI/Employment, Trade Opportunities	US Department of Commerce	Springfield, VA
ELISA II	(202)697-3632	Export License Status Advisor - Technology Export Issues	Defense Technology Security Admin.	Washington, D.C.
Employ-Net	(303)871-9504	Employment Information - Help Wanted Ads- Career Management	David Hakala	Denver, CO
Energy Info Admin E-Publications	(202)586-8658	Variety of Petroleum/Coal/Electricity Energy Statistics	US Department of Energy	Washington, D.C.
Event Horizons	(503)777-1578	Digitized Graphics Image Library	Jim Maxey	Portland, OR
EXEC-PC	(414)964-5160	Largest BBS in US - 90 Lines - 70,000 files - 4 Gigabytes	Bob Mahoney	Shorewood, WI
Far West BBS	(604)381-4430	Large Western Canada Galacticon Info System	Ren L'Ecuier	Victoria, BC
FCC Public Access Link	(301)725-1072	Equipment Authorization Status Advisory Service	Federal Communications Commission	Columbia, MD
Federal Deposit Insurance Corp.	(202)737-7264	General Microcomputer Information	R. Campbell and L. Rudolph	Washington, D.C.
Federal Job Information Center	(313)226-4423	Federal Job Opportunity Lists available online	US Office of Personnel Management	Detroit, MI
FEDLINK ALIX	(202)287-9656	Info on Federal Libraries - Excerpts Library of Congress News	Federal Library Information Network	Washington, D.C.
File Cabinet BBS	(215)678-9854	10-line PCBoard System. 959 MB-100 Conferences-80,000 files	Dan Bair	Wyomissing, PA
Fishing Link	(608)526-9292	River/Lake Charts/Solunar Tables/Fishing Info/Recipes	Jim Pratt	LaCrosse, WI
Fly-Fisher's Forum	(416)463-9090	Information on the Sport of Fly Fishing	Bryan Moir/Skyline Hotel Toronto	Markham, Ontario

FOG City BBS 125/10	(415)863-9697	Gay Community BBS - AIDS Info - Desktop Publishing - MACs	Bill Essex	San Francisco, CA
Forbin Project, The	(319)233-6157	Home of QModem SST Communications Software	John Friel III	Cedar Falls, IA
GAO Bulletin Board	(202)275-1050	Lotus/Database/Word Perfect User Tips	US General Accounting Office/Sheryl Lee	Washington, D.C.
GLIB	(703)578-4542	Gay and Lesbian Information Bureau - 11 Lines - 9600 bps	Community Educational Svcs. Foundation	Arlington, VA
Greenpeace Environet	(415)861-6503	Ecological and Peace Issues - Disarmament/Toxics/Wildlife	Dick Dillman/Greenpeace	Houston, TX
GT PowerComm BBS	(713)772-2090	Home of GT Power Communications Software	Paul Meiners/P&M Software	
Hay Locator	(317)494-6643	Database of Hay/Straw Suppliers and Buyers	Purdue Univ. Agricultural Computer Net	
Hayes Advanced Systems Support	(800)US-HAYES	Eight Line Hayes Modem Support BBS	Hayes Microcomputer Products	Norcross, GA
Hepner/Satronics TBBS	(215)698-1905	Reptile and Amphibian Studies - Poison Snakes/Toads/Fish	Mark Miller	Philadelphia, PA
IBM Users Group Support BBS	(404)988-2790	IBM PC User Groups Database - Newsletter Exchange	IBM National Support Center	Atlanta, GA
Inbound/Outbound	(212)989-4675	Telephone Sales Publication Online Service	Harry Newton Publications	New York, NY
Info-Source Canada	(416)574-1313	Online publications	Eric Feistmant	Hamilton, Ontario
Information Resources Services	(202)535-7661	Fed Micro Procurement Rpts. - List of Banned Contractors	General Services Administration	Washington, D.C.
Intel Support BBS	(503)645-6275	Support for Intel PC Products - Inboard 386/AboveBoard 286	Intel Corporation CEO Division	Hillsborough, OR
Investor's Online Data	(206)285-5359	Online Investment/Stock Market Information/Tech Analysis	Don Shepherdson	Bellevue, WA
JAG-NET	(202)325-0748	Navy Judge Advocate General's Information Network	US Dept. of Navy / Chris Buechler	Arlington, VA
JDR Microdevices BBS	(408)559-0297	Online Hardware Order - Catalog - 1.1 GB Files - Quizzes	JDR Microdevices	San Jose, CA
JOBS	(404)992-8937	Online Job Listings - 2186 Technical Pos. - 10,000 Corps.	Alpha Systems Inc./Bill Griffin	Roswell, GA
Lasergems Computer Hotline	(602)867-7258	Mail Order Laser Salvage/Supply - Laser Eavesdropping Device	Meredith Instrument Company	Glendale, AZ
LUMINA	(612)626-2206	Libraries of Univ. of Minnesota Integrated Net Access/ETVT100	University of Minnesota	Twin Cities, MN
Maxi-Micro TickerScreen	(212)809-1160	2000 Closing Stock Quotes/Market Research/Order Entry	Max Life & Company	New York, NY
MCI ONE Consultant Support	(800)873-5548	ANI Developers/Rates/Press Releases/Tech Notes	Ed Belisle/MCI Consultant Liason Program	Washington, D.C.
MEDCOM BBS Club	(800)445-4227	80 nodes - Games - Chat Lines - News Services	MEDCOM Information Systems	Anaheim Hills, CA
Micro Message Service	(919)779-6674	USA Today/Newsbytes/Boxoffice Magazines - 400+MB Downloads	Mike Stroud	Raleigh, NC
Microtrm Technical Support BBS	(206)881-8119	Support for Popular R-Base Relational Data Base System	Microtrm Corporation	Redmond, WA
Monu-CAD BBS	(607)264-3307	CAD Designs for Tombstones, Monuments, and Memorials	Jim Faliverno/Monumental Computer App.	Cherry Valley, NY
NANG BBS	(202)475-1973	Online Version of Naval Aviation News Magazine	Naval Aviation News/Comdr. John Norton	Washington, D.C.
NARDAC BBS	(804)445-1627	Zenith Computer Support - List of Federal Micro User Groups	Navy Regional Data Automation Center	NAS Norfolk, VA
NASA Spacelink	(205)895-0028	NASA Educational Affairs Div. - Flight Data/Space History	Marshall Space Flight Center	Huntsville, AL
National Agricultural Library	(301)344-8510	Agricultural Info/Research Resources	US Department of Agriculture	Beltsville, MD
National Geological BBS	(703)528-2612	Family History - Genealogical Research - Gravestone Haunting	National Genealogical Society	Arlington, VA
National Inst.Science Technology	(301)948-5717	Micro Elect.Info Exchange - Virus Protection/Security Issues	National Inst. of Science and Technology	Gaithersburg, MD
National Publishers Exchange	(813)989-1087	Headquarters for NPE Newsletter - Desktop Publishing	Ed Aborn	Tampa, FL
NAVWESA	(202)433-6639	Naval Weapons Engineering Support	Dept. of Navy / Bill Walsh	Washington, D.C.
New York Macintosh Users'Group	(212)932-9513	Macintosh Downloads - MAC Street Journal/Newsletter	Darryl Peck/New York Mac Users' Group	New York, NY
NIST ACTS	(303)494-4775	Automated Computer Telephone Service - Sync PC to NBS Time	Nat. Institute for Standards/Technology	Boulder, CO
NOAA Information Technology Exch	(301)770-0069	Microcomputer Applications and Recommendations	National Oceanographic/Atmospheric Admin	Rockville, MD
NOAA Solar	(303)497-5000	Solar Flare/Geomagnetic Data Online	National Oceanographic/Atmospheric Admin	Boulder, CO
Northrop Career Access	(213)938-5532	Northrop Aerospace Employment Opportunities - 7N2	Northrop Corp B2 Division	Pico Rivera, CA
Numisnet	(301)498-8205	Collecting of Coins, Medals, and Exonumia	The Mitchell Group	Laurel, MD
NYCENET BBS	(212)769-0550	New York City Education Network	New York City Board of Education	New York, NY
OCRWM Infolink	(202)586-9359	Radioactive Waste Disposal/Hazardous Materials Handling	Office of Civilian Radiation/Waste Mgmt.	Washington, D.C.
OERI BBS	(800)222-4922	Educational Statistics and Data - Performance Stats -	US Department of Education	Washington, D.C.
Old Colorado City Communications	(719)632-2658	Political Discussions - Unix UUCP Public Access - Multiline	Dave Hughes	Colorado Springs, CO
Online Store DLX	(805)656-0379	Online Catalog of PC Hardware/Peripherals - Online Mailorder	Stan Snyder/Online Store	Ventura, CA
Orade PC	6108 260-6222	South Australian TBBS Multiline System	Don Crago	Pooraka South Australia
Osprey's Nest	(301)989-9036	Birdwatching, Bird feeding, Naturalists/Ecology Issues	Fran and Norm Saunders	Colesville, MD
Personal Resource System	(501)442-8777	Online Publications - Excellent TBBS System	Gary Funk	Fayetteville, AR
Photo*Life	(301)270-2638	Nature Photography	Michael Havelin	Takoma Park, MD
PHYSICS Forum BBS	(413)545-1959	Physics and Astronomical Sciences	Univ. of Mass. Dept. of Physics/Astronomy	Amherst, MA
PKWare BBS	(414)352-7176	Home of PKARC and PKZIP File Compression Utilities	Phil Katz/PKWare Incorporated	Glendale, WI
Popular Mechanics Online BBS	(212)582-8369	Automotive, Home/Shop, Electronics/Photography, Science	Popular Mechanics Magazine	New York, NY
ProComm Support BBS	(314)474-8477	Home of ProComm 2.4.2 and ProComm Plus Comm Prgms	Thomas Smith/DataStorm Technologies Inc.	Columbia, MO
Public Brand Software BBS	(317)856-2087	Commercial Shareware Vendor	Public Brand Software	Indianapolis, IN



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NATIONAL LIST OF ELECTRONIC BULLETIN BOARD SYSTEMS AND ON-LINE INFORMATION SERVICES - JANUARY 1990

SERVICE	PHONE	DESCRIPTION	SPONSOR/SYSOP	LOCATION
Publishers Information Svce.	(312)342-6919	Xerox Ventura Publisher Support/Laser Printing/Scanning	George Weiners	Chicago, IL
Radio Electronics BBS	(516)293-2283	Radio Electronics Magazine Online Adjunct	Gernsback Publications	Farmingdale, NY
Random Access Information Svc.	(503)761-8100	10500 IBM/MAC/AMIGA Files - 3000 MaxiPic Graphics	Janice Stevens	Portland, OR
RGB Computing	(519)824-3997	Multiline Information Service/PC Sales/Large File Selection.	Ronald Spencer - RGB Computing	Guelph, Ontario
Rose Media	(416)733-2780	Excellent Canadian PC Board System-Publications/Conferences	Vic Kass	Willowdale, Ontario
SALEMDUG BBS	(202)646-2887	Hazardous Materials/National Dam Watch/Emergency Info	Federal Emergency Management Agency	Washington, D.C.
Scenix Network	(213)372-2282	USA Today - BoxOffice Magazine - Local Real Estate	Connie Trantham/Steve Campbell	Manhattan Beach, CA
Science Resource Studies BBS	(202)634-1764	Federal R&D Budget - Technical Labor Market Statistics	National Science Foundation	Washington, D.C.
SEABoard	(201)473-1991	Support system for ARC, SEADOG, and AXE software.	System Enhancement Associates	Wayne, NJ
Second Ring, The	(203)268-5315	Home of RBBS Software	Tom Mack	Trumbull, CT
Society for Technical Comm. BBS	(202)393-3557	STC Job Service, Freelance Registry - Technical Writers	Society for Technical Communication	Washington, D.C.
Software Plus BBS	(919)577-9831	Online Publications - Shareware Downloads - 500 MB	Tim Crawford/Software Plus Computers	Jacksonville, NC
Sound Advice BBS	(816)436-4516	Twenty Line PCBoard with 2 Gigabytes Storage - HST Modems	Roy Timberman	Gladstone, MO
Synergy	(617)769-5468	Turbo Basic/Turbo C/Quick C/Turbo Pascal/Assembly Language	Gerry Powers/Jim Boxmeyer	Norwood, MA
Take 3 BBS	(602)482-1001	Reviews of Movies/Videos/ Film Industry Job Clearinghouse	Dave Kidder	Scottsdale, AZ
Talk Channel	(818)506-0620	DLX-Based Multiline Chat/Talk Service - Sexual Orientation	Gary Clarkson	North Hollywood, CA
TAXACOM	(716)896-7581	Botany, Herbaria, FLORA ONLINE Newsletter, Latin Translation	Clinton Herbarium, Buffalo Museum	Buffalo, NY
Taxonomic Reference File	(215)972-6759	Online Bacterial Name Database - ORACLE Door	Biosis Carol Lock/Keith Pittman	Philadelphia, PA
TBBS Net 104/23	(303)699-9248	Home of The Bread Board System (TBBS) BBS Software	Phil Becker/eSoft Inc.	Aurora, CO
Technotronics	(212)924-6899	LAN/PC Support and Technical Information	Chris Weiber	New York, NY
Telegodzilla	(503)621-3746	Home of ZModem File Transfer Protocol/YModem/YAM	Chuck Forsberg/Omen Technology Incorp.	Portland, OR
Telix Support BBS	(416)284-0682	Support Service for Telix Communications Software	Colin Sampaleanu/Exis Incorporated	West Hill, Ontario
Texas State Law Library BBS	(512)463-1371	Online Legal Periodicals and Citation Database	Jim Appleby	San Antonio, TX
The Business BBS	(213)477-0408	Microsoft Windows Support	Joseph Sheppard	Los Angeles, CA
The Ledge PCBoard	(818)352-3620	Home of Textview Door for PCBoard Systems	Richard Paquette	Tujunga, CA
The LiveWire BBS	(609)235-5297	Online Magazine Subscription Orders	Michael Allen	Mt. Laurel, NJ
The Other Ball	(818)358-6968	Adult Multiline Chat System - Games - Magazines - Downloads	Tim McCormick and John Everman	Monrovia, CA
The Unique and Nifty BBS	(317)866-0725	Computer Graphics, Animation, and Sound Files	Whole Earth Lctronic Link	Crawfordsville, IN
The Well	(415)392-6106	Very Popular Big BBS - Hourly Charges	Phil Thomas/Thomas Business Systems	Sausalito, CA
Thomas Business Systems	(407)395-7057	Used Computer/Peripheral Price List Online Database	Sun Microsystems	Boca Raton, FL
TOPS Support BBS	(415)769-8874	Application Notes, Product Descriptions for TOPS LAN	Dr. James Waldron	Alameda, CA
United Nations BBS	(201)795-0733	UN Press Releases - Unix News - Unicef	US Department of Commerce US Naval Obser	Hoboken, NJ
US Naval Observatory BBS	(202)653-1079	Time - Date - Sunrise - Sunset - Enter @TCO for Commands	US Robotics Corporation	Skokie, IL
US Robotics - Sit UBU Sit	(312)982-5092	Support for US Robotics HST 9600 bps Modems	Boardwatch Magazine	Littleton, CO
USA Today Distribution Service	(303)973-4222	Distribution Service for USA Today/Newsbytes/Boardwatch	US Geological Survey Earthquake Info Cnt	Denver, CO
USGS Quick Epicenter Determin.	(800)358-2663	Earthquake Epicenter Data - Geomagnetism/7E2	US Dept. of Commerce US Naval Observ.	Washington, D.C.
USNO Time of Day for Clocks	(202)653-0351	Xmits ASCII Time String - Sync Your PC to USNO Atomic Clock	University of Texas at Austin	Austin, TX
UT Library Online Catalog	(512)471-9420	Online Library Card Catalog Listing 3.5 million entries	Veterans Admin - Phoenix Regional Office	Phoenix, AZ
VA Property Listing BBS	(602)241-2371	List of VA held property foreclosures	Richard and Barbara Kenney	Orlando, FL
Vacation Florida Database	(407)839-0333	Florida Tourism Information/Database of Campsites/Hotels	Vancouver Board of Education	Vancouver, BC
Vancouver ED-NET	(604)734-3282	Educational Online Service	Ward Christensen/Randy Sueess	Chicago, IL
Ward and Randy's CBBS	(312)545-8086	World's First and Oldest Micro-based BBS - Since 2/16/78	Steve Root/WeatherBrief Data Services	Salt Lake City, UT
WeatherBank	(800)827-2727	Online Weather Forecasts for Any City - Download Radar Data	Haynes Environmental Systems	Minneapolis, MN
WeatherStar Pilot Briefing	(612)296-5426	Pilot Data, Weather, Great Circle Route, Airport Information	Western Digital Corporation	
Western Digital Tech Support	(714)756-8176	Hard Drive/Controller Installation and Config Data	XyQuest Inc. - Christine Madsen	Bellerica, MA
XyQuest Support BBS	(508)667-5669	Support for XyWrite Word Processor - Custom Keyboard Files	Reginald Hirsch; Attorney	Houston, TX
Ye Olde Bailey	(713)520-1569	Legal Issues Regarding RBOC Relations with Info Services		



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# DENVER PC BOARDWATCH

LIST OF AREA CODE 303 ELECTRONIC BULLETIN BOARD SYSTEMS AND ON-LINE INFORMATION SERVICES - JANUARY 1990

TITLE	PHONE	DESCRIPTION	TYPE	MODEM	SOFT	CITY	OPERATOR
Adelante 104/93	443-8292	Central/Latin America News/Issues	IBM	2400	Opus	Boulder	Zhai Stewart
APSNat	693-6737	Aurora Public Schools Network	Apple	2400	GBBS	Aurora	Columbia Middle School
Arvada 68K BBS	424-9831	Amiga/Macintosh/Atari ST/Motorola 68000	Amiga	2400	BBS-PC	Denver	Feld Bishop
Boardwatch Magazine 104/555	973-4222	Back Issue Index, Dialing Directories	IBM	2400	TBS	Littleton	Jack Rickard
Boulder Amiga Users Group	494-4470	Amiga Support - Over 1000 Amiga Files	IBM	2400	QuickBBS	Boulder	Ken Fricklas
Byte Shop 104/31	794-5065	Jokes/Good Ehomail/Downloads	IBM	96HST	QuickBBS	Littleton	Dan O'Neal
C.A.C.H.E.	745-4960	CO Apple & Compatible Home Enthusiasts	Apple	2400	GBBS	Denver	Gary Edwards
C.A.R.L. Denver	830-1546	Colorado Alliance of Research Libraries	Tandem	1200	Custom	Denver	N/A
C.A.R.L. Denver	830-2199	Computer Discount On-line Store/Amiga	Amiga	2400	TBS	Denver	Jay Tompkins
C.D. Players	825-0419	Firearms for Sale/Trade - Online Games	IBM	2400	QuickBBS	Littleton	Dave Bell
Chaffield Army	972-9023	Bhagwan Shree Rajneesh followers	IBM	96PEP	Opus	Louisville	Terry Mooster
Chidvilas 104/207	449-7399	Adult Meeting Place/Shareware Downloads	IBM	96HST	TBS	Littleton	Don Marquart
Club Micro/Computatch 104/88	973-8578	Colorado State Judicial ADP Department	IBM	96HST	QuickBBS	Denver	Scott V. Hopta
CO State Judicial BBS 104/420	831-1704	Astronomy - 120+ MB of Files - Multiline	IBM	96HSTV32	TBS	Denver	Brian Barte
Comm-Post, The 104/666	534-4646	dBase Database Software Development	IBM	96Hayes	QuickBBS	Littleton	Jim Bucks
Computer Consulting 104/318	973-1002	IBM/Compatible Subscription Board	IBM	96MICROC	RBS	Denver	Lupe Ramirez
Control Systems 104/417	458-6248	Oldest User's Group in Area - CPM - IBM	IBM	2400	Fido	Broomfield	Al Lundquist
CPM SIG INC 104/372	465-1313	Twenty Online Games - Adult Messages	IBM	2400	WWIV	Denver	Bill Bonic
Crypt, The	696-9084	Golden Micro Computer Sales/Support	IBM	96HST	QuickBBS	Denver	Bob Wells
D-Link 1 104/411	936-2791	Role Playing Games	IBM	2400	QuickBBS	Denver	Steve Boyd
Dark Crystal, The 104/421	654-1278	R-BASE Information PC Related Files	IBM	2400	QuickBBS	Lakewood	Paul Fullerton
Denver Area R-BASE Users Group	422-2149	Hearing Impaired/Computing	IBM	2400	TBS	Niwot	David Sheneman
Denver Deaf-Net	989-9245	TRS80 Support/16 Online Adventure Games	IBM	96HSTV32	Opus	Denver	Russ Anderson
Dinosaur Board 104/114	782-9547	Wicca/Astrology/Tarot/Pagan Interests	IBM	2400	QuickBBS	Littleton	Ronald Olsen
Eagle's Nest 104/315	1-652-3595	Many Files and Echoes	IBM	9600	QuickBBS	Westminster	Daniel Osborn
Emerald City BBS 104/214	933-0701	Electronics Discount World	IBM	2400	QuickBBS	Denver	David Hakala
EMPLOY-NET	427-1471	Employment Info - Career Management	IBM	2400	Protee	Denver	Jeff Tensly
Enterprise	871-9504	Local Radio Freq List - Star Trek Theme	Apple	2400	TBS	Aurora	Phil Becker
eSoft TBBS Software Support	377-1005	The Bread Board System-LOGON/ANSI DEMO	IBM	96HST	QuickBBS	Golden	Steve Shockley
Fantasy Mtn D-Link IV 104/803	699-9248	Deaf and Handicapped Issues ASCII TTY	IBM	2400	Custom	Englewood	Mickey Russell
Flightstar Information Service	278-8369	Used Aircraft For Sale Database/Bluebook	IBM	2400	Stadel	Broomfield	John Ferguson
Four Wheeling BBS, The	790-4356	Jeeping / Camping / Outdoors	Atari	2400	QuickBBS	Lakewood	Fred Schupner
Free's BBS	469-4954	Over 1300 Adult Files	IBM	2400	Opus	Denver	Charles Frnka
Free Information Exch. 104/89	233-1316	Programming - Home and Garden	IBM	2400	QuickBBS	Aurora	Bill Williams
Free Thought BBS 104/423	699-1516	Objectivism/Libertarian-IBM/Amiga Files	IBM	96HSTV32	QuickBBS	Broomfield	Gary Jones
Front Range BBS 104/213	695-0654	Front Range Software Services	IBM	2400	QuickBBS	Aurora	Tom Oppenheimer
Front Range PC Users Group BBS	466-2296	Fort Collins Group - Computer Express	IBM	2400	Wildcat	Fort Collins	
FutureWave BBS 104/57	1-493-4094	Games / C Language / MIDI	IBM	2400	Opus	Boulder	
Galaxy Express 999 104/215	440-7425	Japanese Cartoon Animation-Messages	IBM	2400	QuickBBS	Broomfield	Bruce Arnold
Gay Community Fido 104/19	469-3221	Messages / Downloads for Homosexuals	IBM	1200	QuickBBS	Littleton	Withheld by Request
GDP Technologies BBS	795-1215	Outstanding IBM Shareware/Programming	IBM	2400	Wildcat	Lafayette	Tom Gettys
Groto, The	673-9470	Amiga, Pascal - Ebert Personal Computers	IBM	2400	TBS	Aurora	Vincent Veritas
Home BBS, The 104/419	694-9050	Recipes/Cooking Theme	IBM	2400	QuickBBS	Denver	Richard Harper
HP Haven 104/312	428-1185	Tradewares/On-line Games/ 5PM-7:30 AM	IBM	96HST	QuickBBS	Westminster	Mark Willecke
Intelligence Connection, The	373-9581	Artificial Intelligence/Natural Language	IBM	2400	QuickBBS	Golden	Clemith Houston
JEFFCOM BBS	273-6951	Jefferson County Public Schools	IBM	1200	RBS	Boulder	Ron Dries
King's Market Bookshop 104/115	665-6091	Books, Writers, On-line Adventure Games	IBM	2400	TBS	Denver	Jim Burt
Kings Bench 104/615	377-6725	Compatible Computer Info Exchange	IBM	2400	Fido	Denver	Ralph Allison
L&L Support	420-3568	Primary GBBS Pro Software Support BBS	Apple	2400	GBBS	Arvada	Lance Taylor-Warren
Lakewood Department of Safety	987-7388	Police Sponsored - Law Enforcement Msgs	IBM	1200	RBS	Wheatridge	Larry Scheidman
Laser/Writing Desktop Service	741-4122	Laser Printing/Scanning/Linotronic 300	MAC	1200	RedRyder	Denver	Bill Wright

Lensman, The	979-8953	Science Fiction/Fantasy Fandom News/Info	IBM	2400	GT Power	Littleton	Greg Bradt
LES-COM-net	526-2046	Lesley College Comm Net - GBBS Multiline	Apple	2400	GBBS	Genesee	George Willett
Lodge, The 104/212	420-0305	Anavda Quick BBS Board	IBM	2400	QuickBBS	Arvada	Harold "Monty" Montrose
MACE 104/416	797-8090	Metro Area Computer Enthusiasts	IBM	2400	QuickBBS	Denver	Ken Zen
Med-Link Colorado 104/444	499-1022	Medial Files and Information	IBM	2400	Opus	Boulder	Ron Kuseksi
MICRO	752-2943	Medial High Computer Resource Organization	IBM	2400	QuickBBS	Westminster	Jim Kochmann
Microlink B 104/108	972-9600	1 Gigabyte Files - USA Today - Multiline	IBM	96HSTV32	TBBS	Littleton	Girard Westenberg
Microlink D 104/711	237-8575	Over 200 MB - Doesn't Break	IBM	96HST	TBBS	Lakewood	???
Microlink Minus Two 104/204	753-9710	Professional Comp. Sales Inc./Astronomy	IBM	2400	TBBS	Denver	Paul Smith
Midrash 104/18	289-6864	Messianic Judaism - Religious/Philosophy	IBM	96HST	QuickBBS	Denver	Daniel Segard
Mile High BBS	733-1340	Triathlons - Race Schedules - Fitness	IBM	2400	RBS	Denver	Bill Ankele
Mile High Mac Meet	758-9159	Denver Macintosh Users Group	MAC	96HST	WWIV	Denver	Jon Taylor
Mile High Net	671-7308	Fido Board	IBM	2400	Fido	Aurora	Dave Miller
Monkey Boy BBS 104/43	469-7161	Smileware Software	IBM	2400	Opus	Broomfield	Todd Hill
NBS Automated Computer Time	494-4775	ACTS - Sync PC Clock to NBS Atomic Clock	Custom	1200	Custom	Boulder	Natl. Bureau of Standards
NetComm BBS	790-8349	Weather - Online Games - 110 MB	IBM	2400	GT Power	Littleton	Bill Watts
New Age Bulletin Board, The	366-1106	Health, Ecology, Philosophy	IBM	1200	TBBS	Aurora	Hal/Fran Piser
NightFlyer 104/210	467-9199	Basic/Database/Assembler/C Programming	IBM	2400	QuickBBS	Arvada	Marcel Madonna
Ninth Portal, The	690-5001	SciFi/Fantasy Starship Exploration Game	Amiga	2400	Atredes	Littleton	Rick Henderson
Nurse Link 104/52	270-4936	UCHSC School of Nursing	IBM	2400	TBBS	Littleton	Larry McNeill
OKY BBS 104/113	494-0533	Armenian Electronics Consultant	IBM	2400	QuickBBS	Boulder	Omig Kouyoumdjian
On-Line Consulting 104/45	449-5251	Consultant Directory/Desktop Publishing	IBM	2400	Opus	Estes Park	Lee Lasson
On-Line Shopping Service	442-5125	Boulder Home Grocery Delivery \$5 + 5%	IBM	1200	Chairman	Boulder	Pete Dempsey
P2B2 S 104/51	329-3337	Public Psychiatry / AI Themes 6PM-8AM	IBM	2400	QuickBBS	Denver	Claude Warren
PCIS 104/904	789-4610	PC Info Services - List of User Groups	IBM	2400	Opus	Englewood	Phil Kaiser
Pentax Support	460-1637	CD WORM/Flatbed Scanner/Fanfold Laser	IBM	1200	TBBS	Broomfield	Chris Anderson
Pinecliff 104/28	444-7073	170 Meg - Online Order for CDB Systems	IBM	96HST	Opus	Boulder	Craig Baker
Pink Flamingo 104/607	497-3934	Previously Fido NBS	IBM	2400	QuickBBS	Boulder	Cathy Nicolletti
Priority Business Sys. 104/41	771-8107	PC Magazine/Tech Journal Files	IBM	2400	Opus	Littleton	John Bilbro
Professional System, The	740-2223	Writers, Lawyers, EDP Auditors	IBM	1200	TBBS	Littleton	Bob Voorhees
Quest, The	429-4617	Online Chess/Tradewars/Empire/Tnivia	IBM	2400	QuickBBS	Denver	???
Quick Epicenter Determination	279-6374	USGS Earthquake Data 7E2	VAX	300 7E2	???	???	Bruce Presgrave
R.A.B.I.T.	757-9509	Colorado Highway Department - Planning	IBM	1200	TBBS	Denver	Colorado Dept. Highways
Ready Room, The 104/424	329-8136	Star Trek Theme - USS Titakal NCC-1799-B	IBM	2400	QuickBBS	Denver	Jason Steck
Realtime Control & Forth Board	278-0364	Vesta Technology/Denver Forth Int. Group	IBM	2400	PCBoard	Wheatridge	Jack Woehr
Regency Datasource 104/58	972-1222	Private Computer Consulting Support	IBM	96Hayes	Opus	Littleton	Charlie Bass
RIBBS Support Hdqtrs. 104/54	343-6707	Support for CoCo RIBBS Software	IBM	2400	QuickBBS	Aurora	Ron Bihler
Rocky Mountain RBS	750-2107	INFO NEEDED	IBM	1200	RBS	Aurora	Steve Komreich
Rocky Mtn Info Exch 104/739	841-9570	Multiline - INFOMAT - Chat areas - Games	IBM	96HSTV32	TBBS	Parker	Larry Kayser
Ron and Shannons BBS	978-0298	Atari Support 5.4 MB XE 130	Atari	2400	OASIS	Englewood	Ron/Shannon Sellers
Short Line 104/36	778-7312	Varied Topics, FidoNet, BinkleyTerm	IBM	96HST	TBBS	Lakewood	Alan Applegate
SnarfQuest V 104/317	973-0625	The Tower	IBM	2400	QuickBBS	Littleton	Radford Walker
SnarfQuest II 104/46	761-1634	The Arena On-line Games, Fantasy, AD&D	IBM	96HST	TBBS	Englewood	Dax Davis
Sound Doctrine BBS 104/514	680-7209	Christian BBS / Sound Doctrine Church	IBM	1200	TBBS	Aurora	Tim Williams
Space Environment Service Cntr	497-5000	NOAA Solar Flare Forecast / Advisory	IBM	2400	PBBS	Boulder	US Dept of Commerce
Space Network	494-8446	Space Exploration Information	IBM	1200	TBBS	Boulder	Tom Meyer
Steamboat Information	1-879-6741	Info on Steamboat Springs Area	IBM	1200	TBBS	Steamboat Springs	???
Stonewall 104/123	499-2676	Online Games/Graphics 120 MB	IBM	96HST	QuickBBS	Boulder	Mike Reetz
Terus Public BBS 104/44	699-9248	The Bread Board System Support	IBM	2400	TBBS	Aurora	Phil Becker/eSoft Inc.
The 8th Sea 104/610	341-5434	MINDS AI TextBase Indexer Support	IBM	96HST	Opus	Broomfield	Todd Hill
Translations Unlimited	252-9235	FidoNet 104 Net Coordinator	IBM	2400	QuickBBS	Northglenn	Rod Lamping
Vet Set, The	988-5765	Language Translation GPM-6AM	IBM	2400	Minihost	Lakewood	Jon Johnson
Watchdesk, The 104/66	690-3218	Veterans Issues - Colorado Lottery Data	IBM	2400	QuickBBS	Aurora	Alfred Petersen
Wayt, The 104/211	450-0822	Safety - Arson - Hazardous Material	IBM	96HST	QuickBBS	Thornton	Emit Hurdlebrink
Wizardry 104/630	429-2975	Good Collection of Game Software	IBM	96HST	Opus	Westminster	Ken Shimko
World Peace BBS 104/415	670-1416	Fantastic Online Blackjack/Casino Games	IBM	96HST	QuickBBS	Evergreen	Marvin Cook
	320-4822	Current Events, Politics, Religion	IBM	2400	QuickBBS	Denver	Bucky Carr



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We do not provide software for the Mac, Amiga, or other non-IBM compatible machines. Why? Because we think it's better to put all our effort into providing you with the best possible software collection for your IBM-PC or compatible system.

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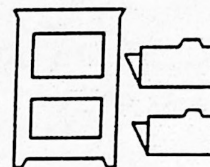
Name you will use for BBS Logon

First \_\_\_\_\_ Last \_\_\_\_\_

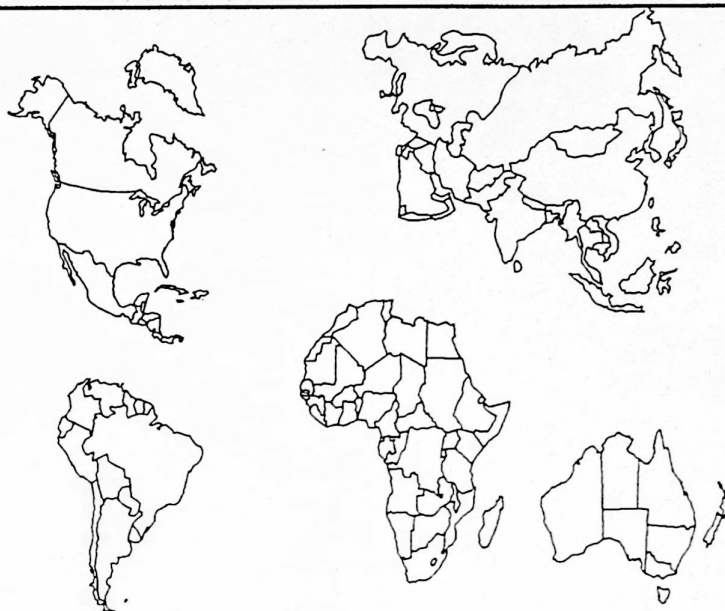
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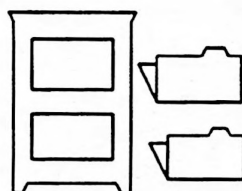
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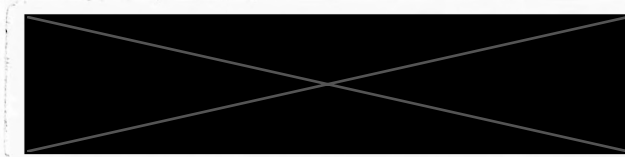
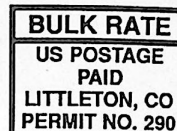
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